STUDIO ASSOCIATO DI INGEGNERIA, GEOLOGIA e ARCHITETTURA

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COMUNE DI VENTIMIGLIA

CAVA BERGAMASCA 15 IM

PROGETTO DI VARIANTE AL PIANO DI COLTIVAZIONE APPROVATO CON DGR 2680/2006 ai sensi dell'art 28 comma 1bis della LR 5 aprile 2012 n° 12 e smi

COMPRENSIVO DEL PROGETTO DI ADEGUAMENTO IDRAULICO ALLA DGR 901 DEL 07.08.2015

SUAP Ventimiglia rif prat 00224540161-01082016-1439 prot 0002216 del 5 agosto 2016

RELAZIONE IDRAULICA

Elaborato: h01 (Rev 1 ottobre 2018)

IL COMMITTENTE: Soc. F.lli CARMINATI S.p.A.

I TECNICI:

Geol. Vittorio Vezzaro

Ing. Mauro Marchiano

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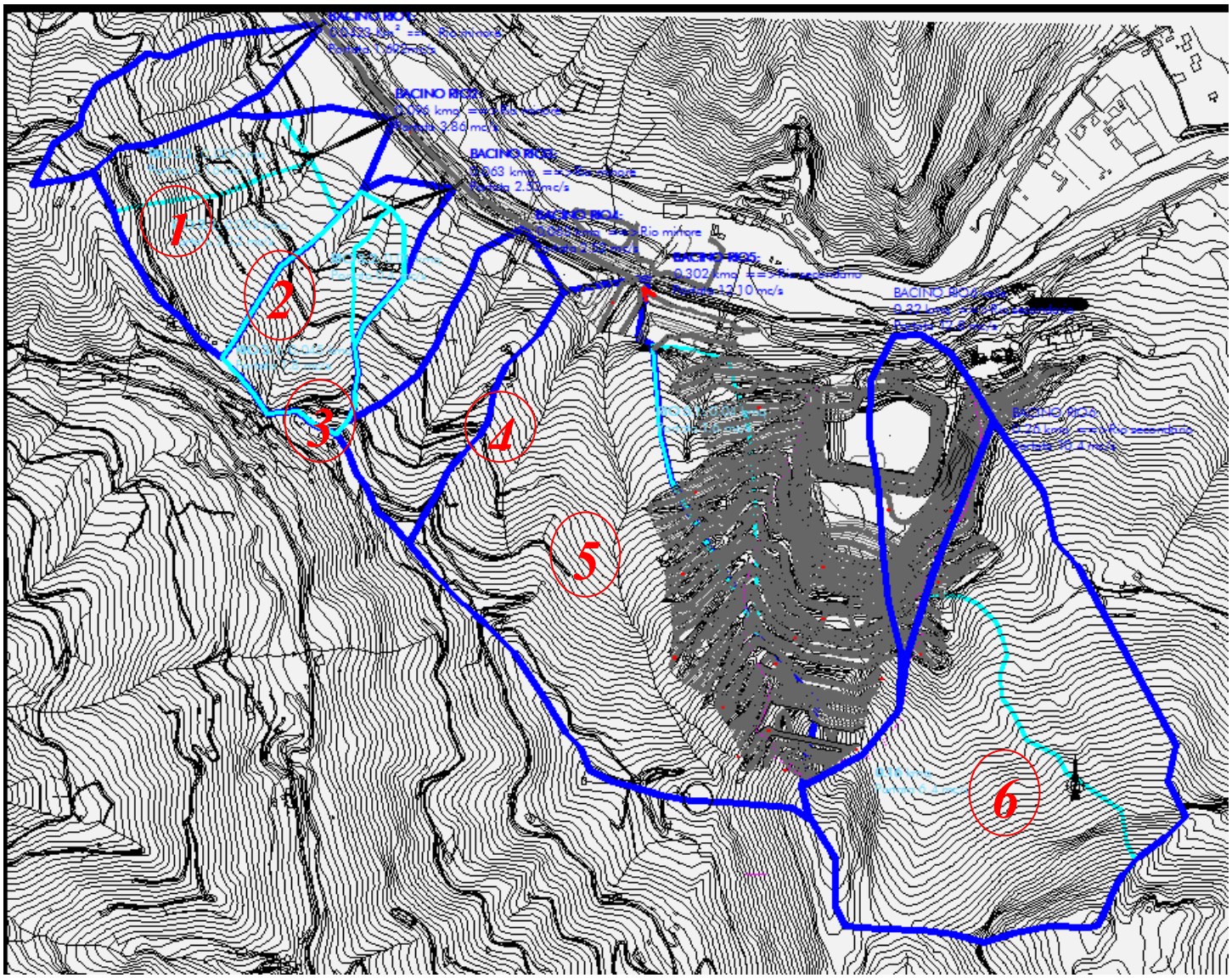
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PREMESSA

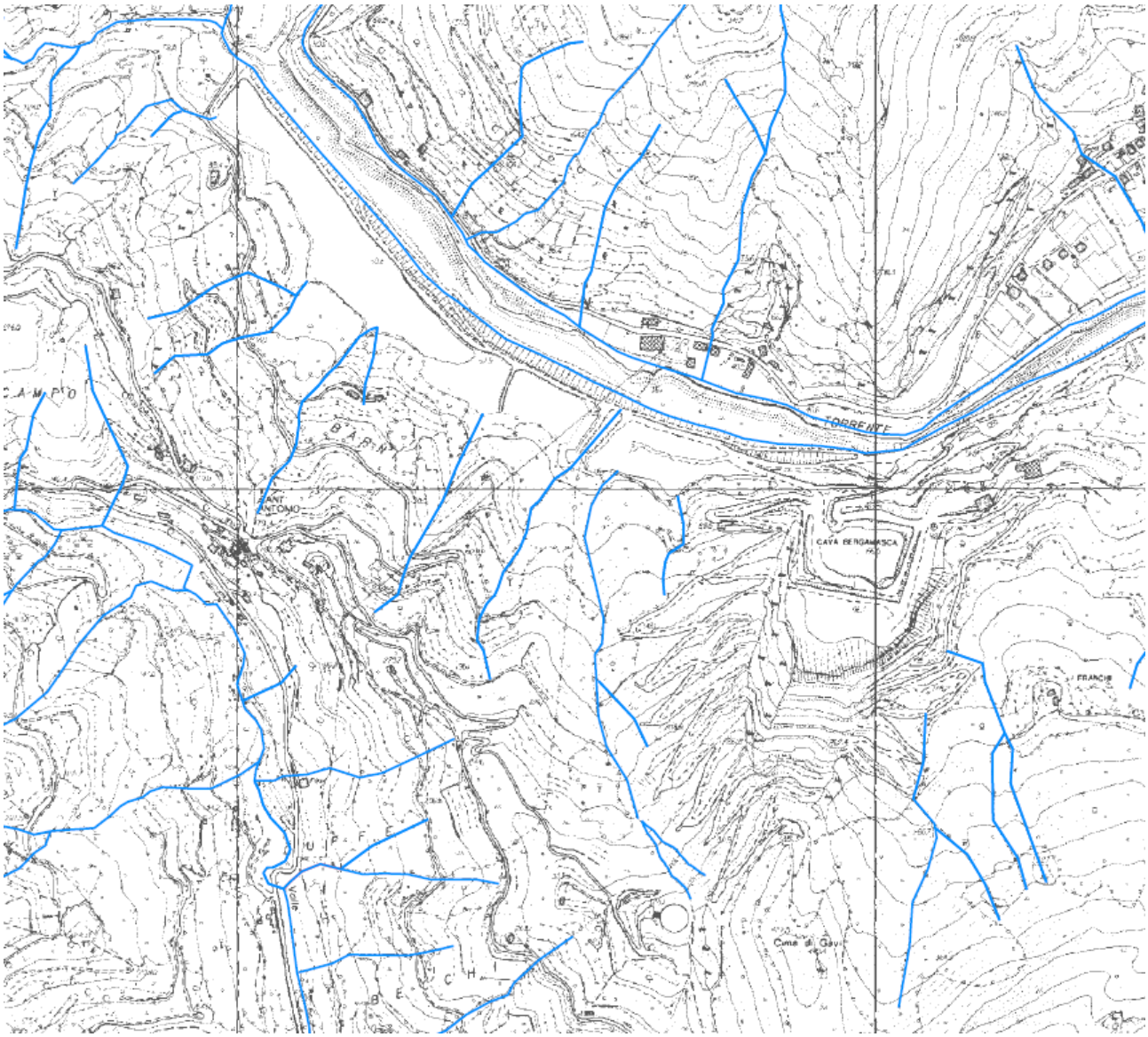
La cava Bergamasca si trova in sponda idrografica destra del torrente Bevera. Lungo il versante di cava vengono individuati i rii che confluiscono poi nel Torrente Bevera, e contrassegnati con un numero da 1 a 6, come individuato negli elaborati grafici allegati.

Per alcuni rii è attualmente presente una canalizzazione, che risulta non adeguata al deflusso della portata duecentennale con adeguato franco e viene quindi previsto un adeguamento, per altri è prevista una nuova sistemazione.

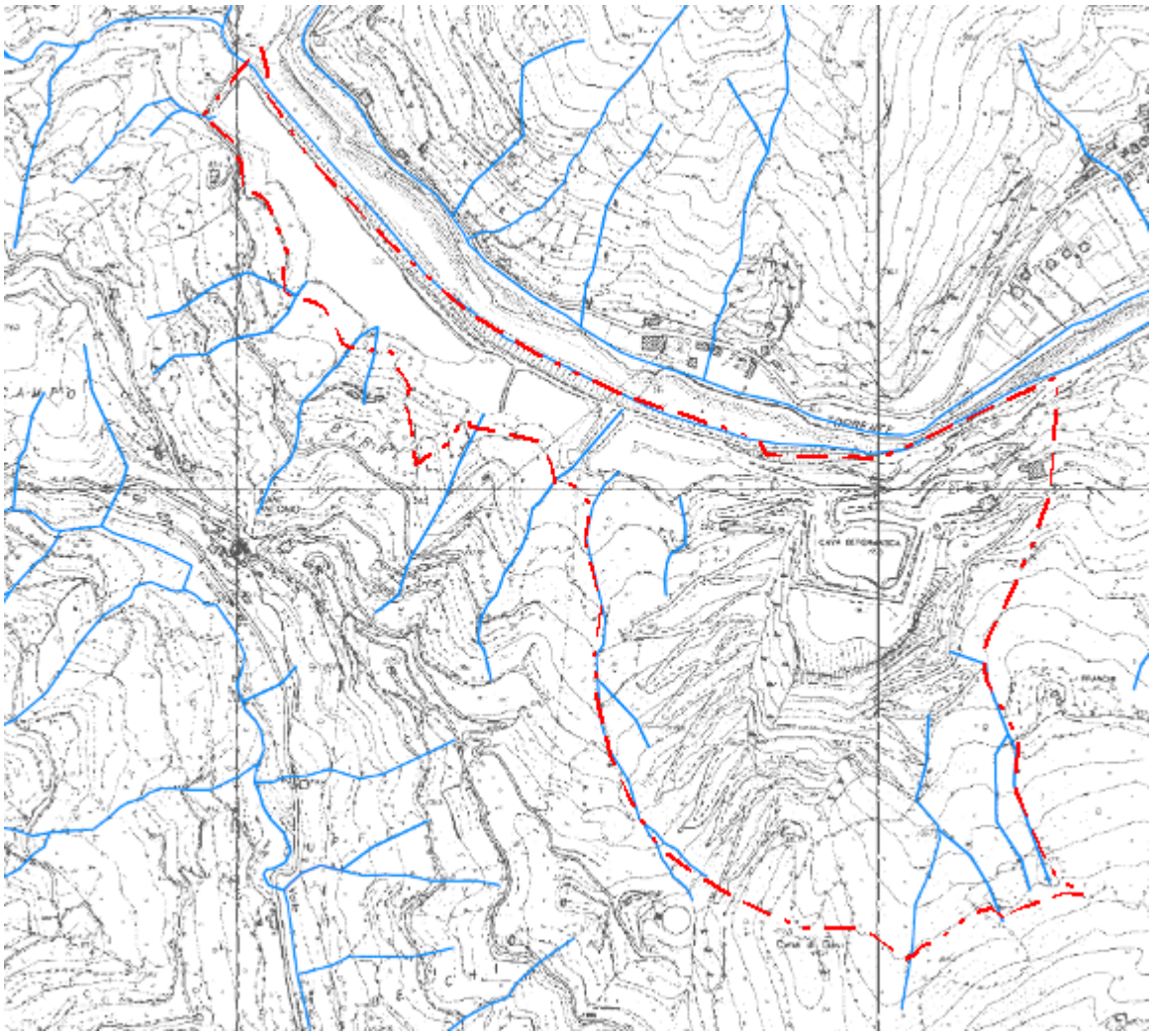


RETICOLO IDROGRAFICO

Per l'individuazione del reticolo idrografico interferente con la zona della attività di cava come individuata dal PTRAC si è fatto riferimento alla Tavola 17 sud del Piano di Bacino Ambito n° 1 Roia "carta reticolo idrografico"

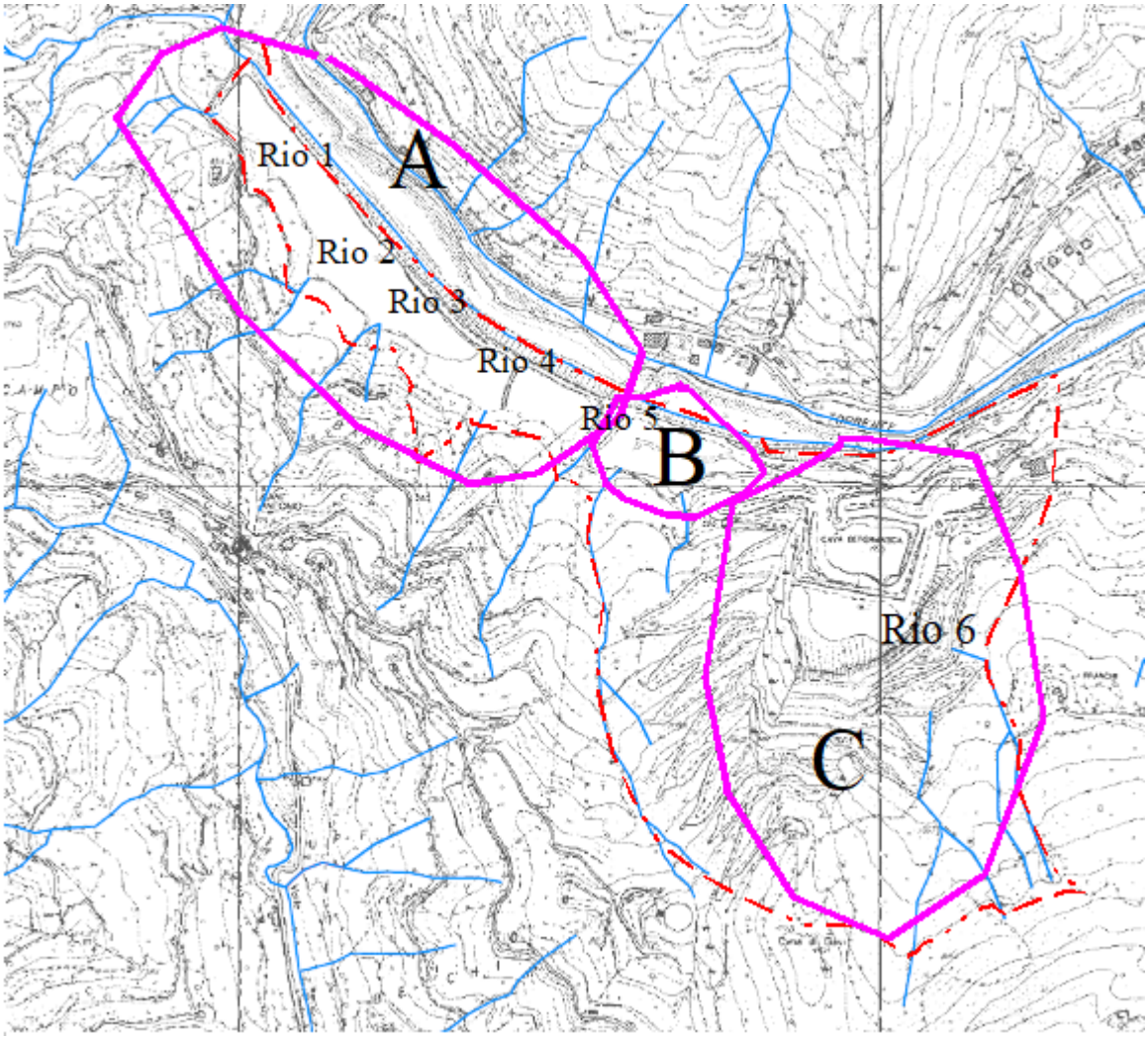


Stralcio Piano di Bacino Ambito n° 1 Roia
carta reticolo idrografico Tavola 17 sud



Stralcio Piano di Bacino Ambito n° 1 Roia
carta reticolo idrografico Tavola 17 sud

SOVRAPPOSIZIONE PERIMETRO AREA PTRAC CAVA BERGAMASCA n° 15 IM



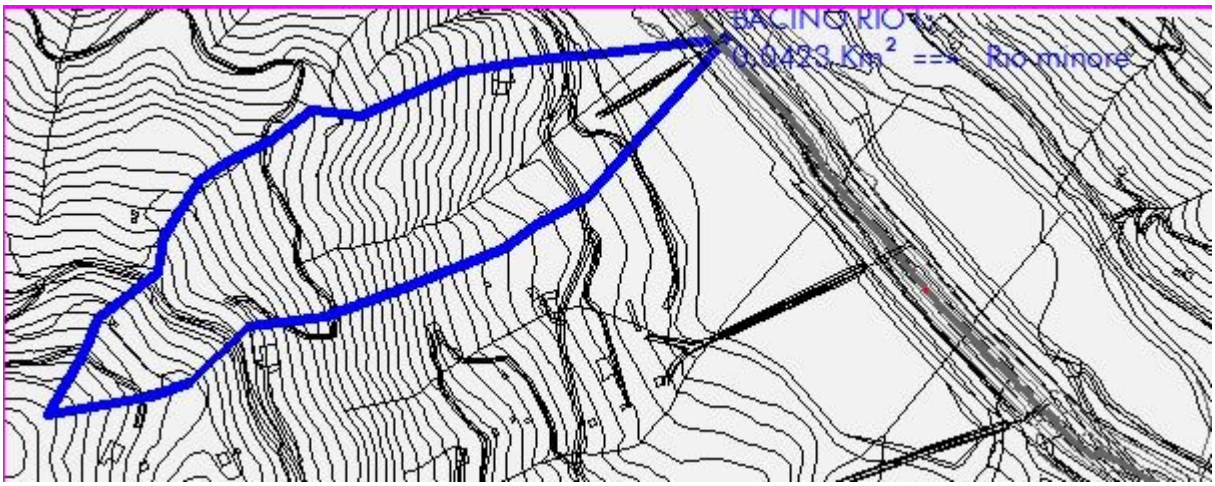
Stralcio Piano di Bacino Ambito n° 1 Roia
carta reticolo idrografico Tavola 17 sud

SOVRAPPOSIZIONE PERIMETRO AREA PTRAC CAVA BERGAMASCA n° 15 IM

CALCOLO DEI BACINI IDROGRAFICI

- **RIO 1**

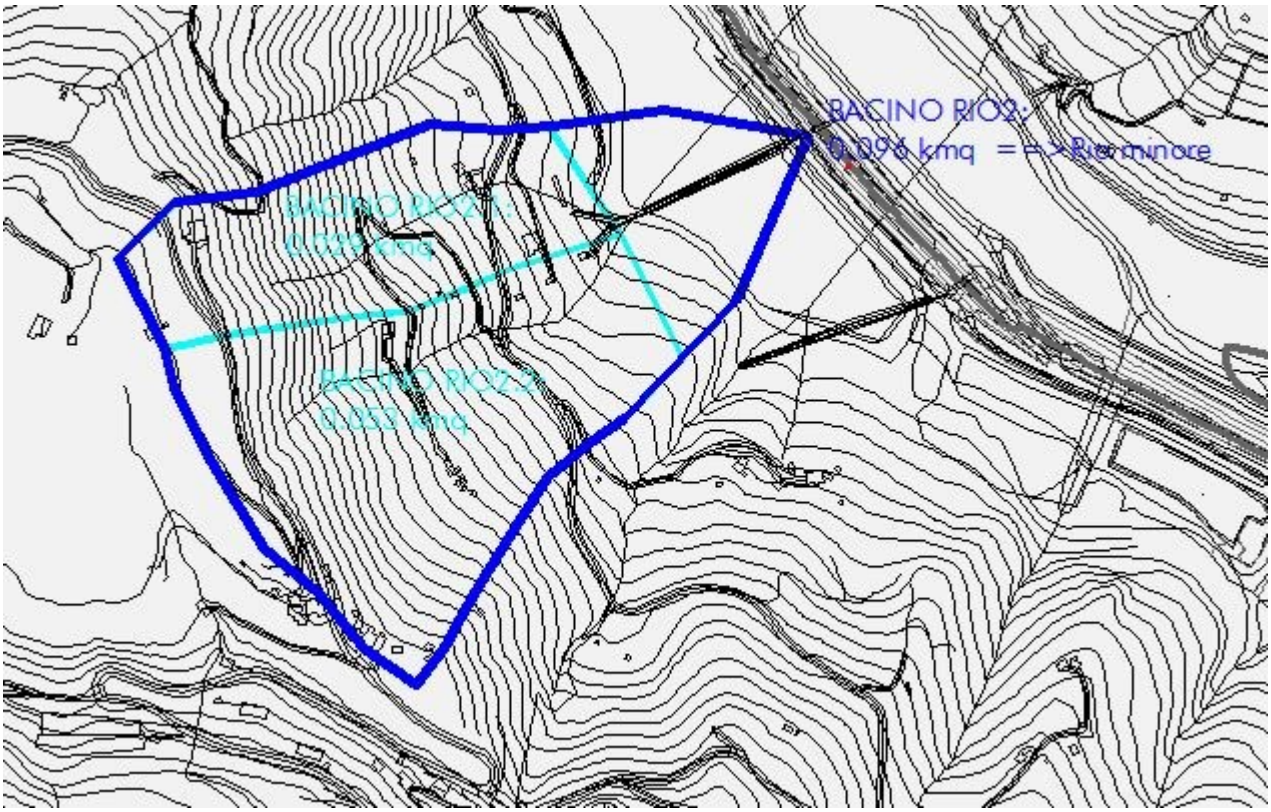
Il rio sottende un bacino di 0.0423 km^2, come riportato nella Carta Tecnica riportata sotto, rientra quindi nel reticolo idrografico minore.



Bacino Rio 1

- **RIO 2**

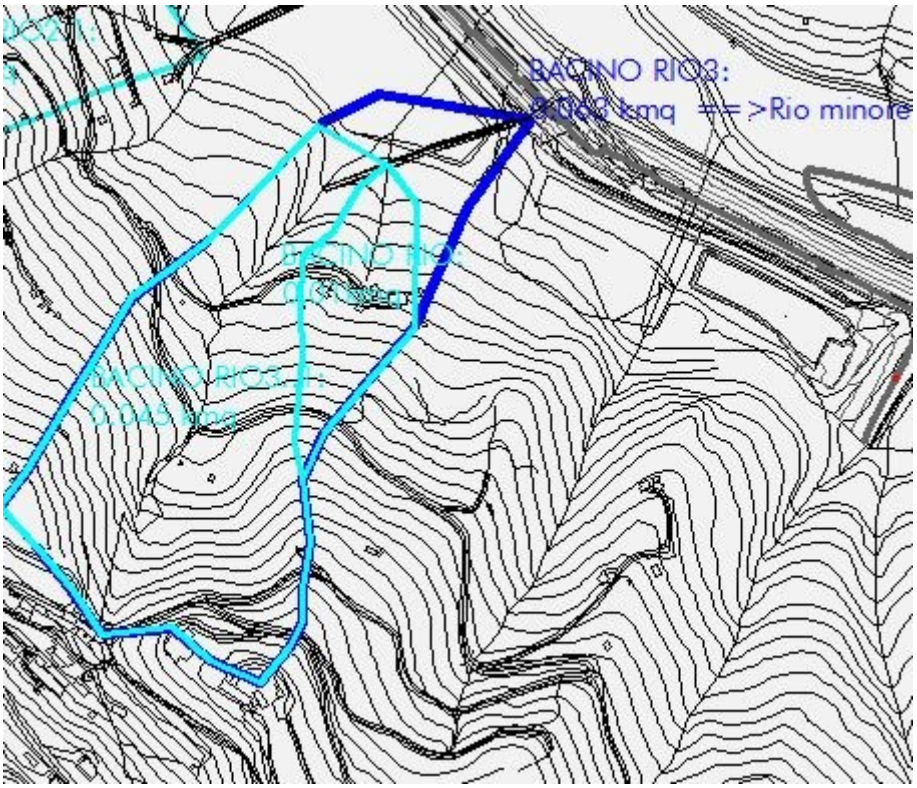
Il rio sottende un bacino di 0.096 km^2, come riportato nella Carta Tecnica riportata sotto, rientra quindi nel reticolo idrografico minore.



Bacino Rio 2

- **RIO 3**

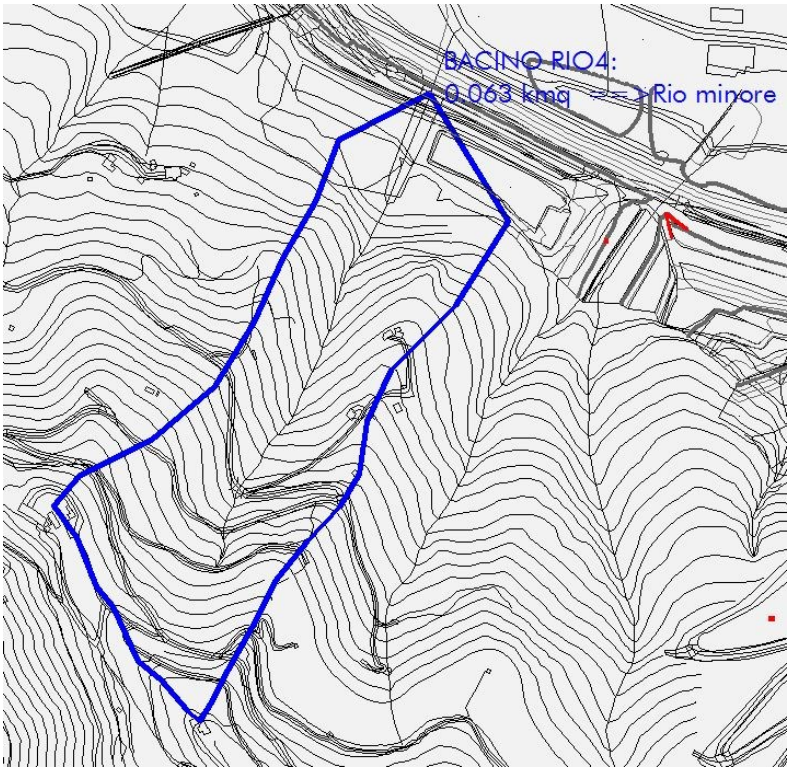
Il rio sottende un bacino di 0.063 km^2, come riportato nella Carta Tecnica riportata sotto, rientra quindi nel reticolo idrografico minore.



Bacino Rio 3

- **RIO 4**

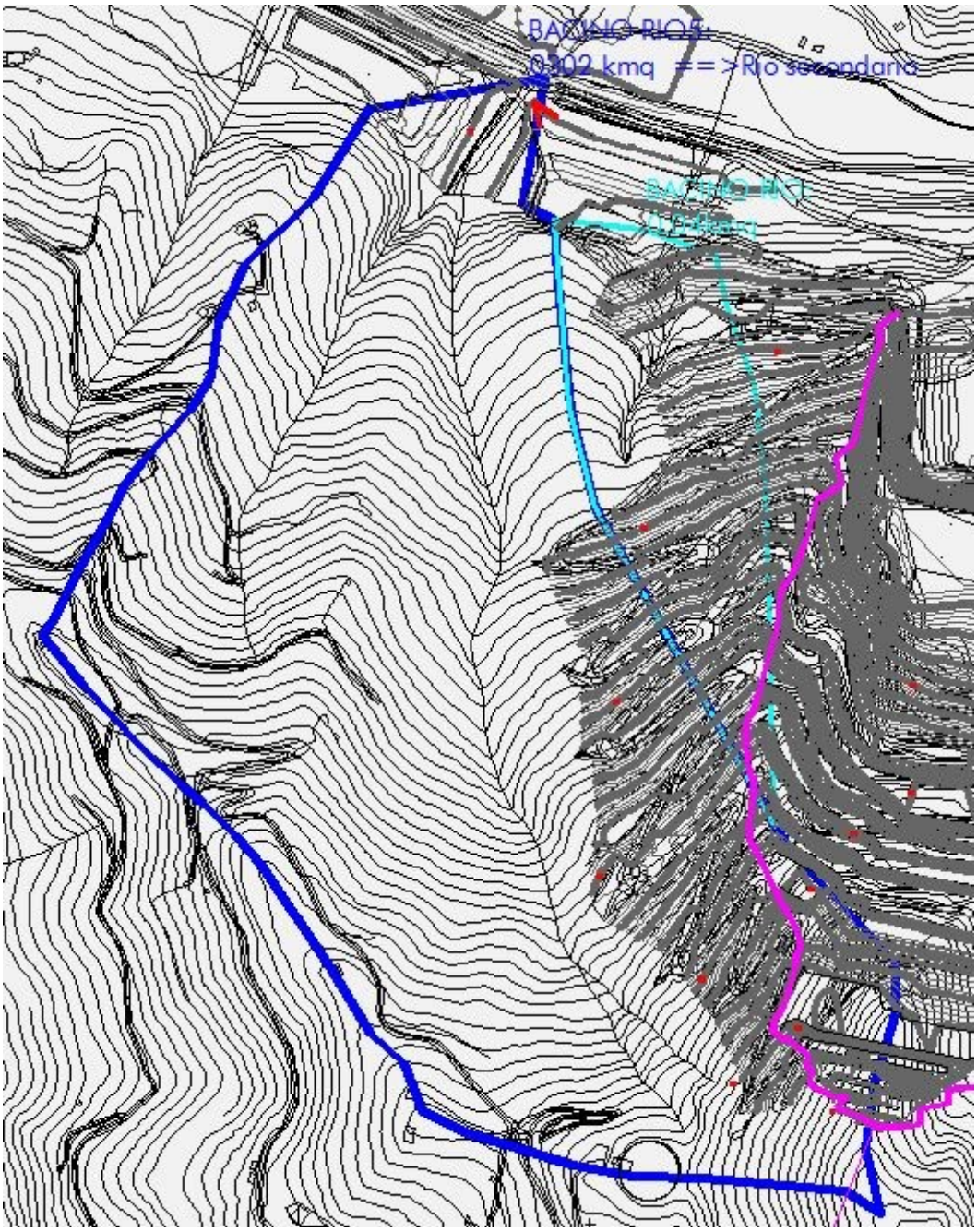
Il rio sottende un bacino di 0.063 km^2, come riportato nella Carta Tecnica riportata sotto, rientra quindi nel reticolo idrografico minore.



Bacino Rio 4

- **RIO 5**

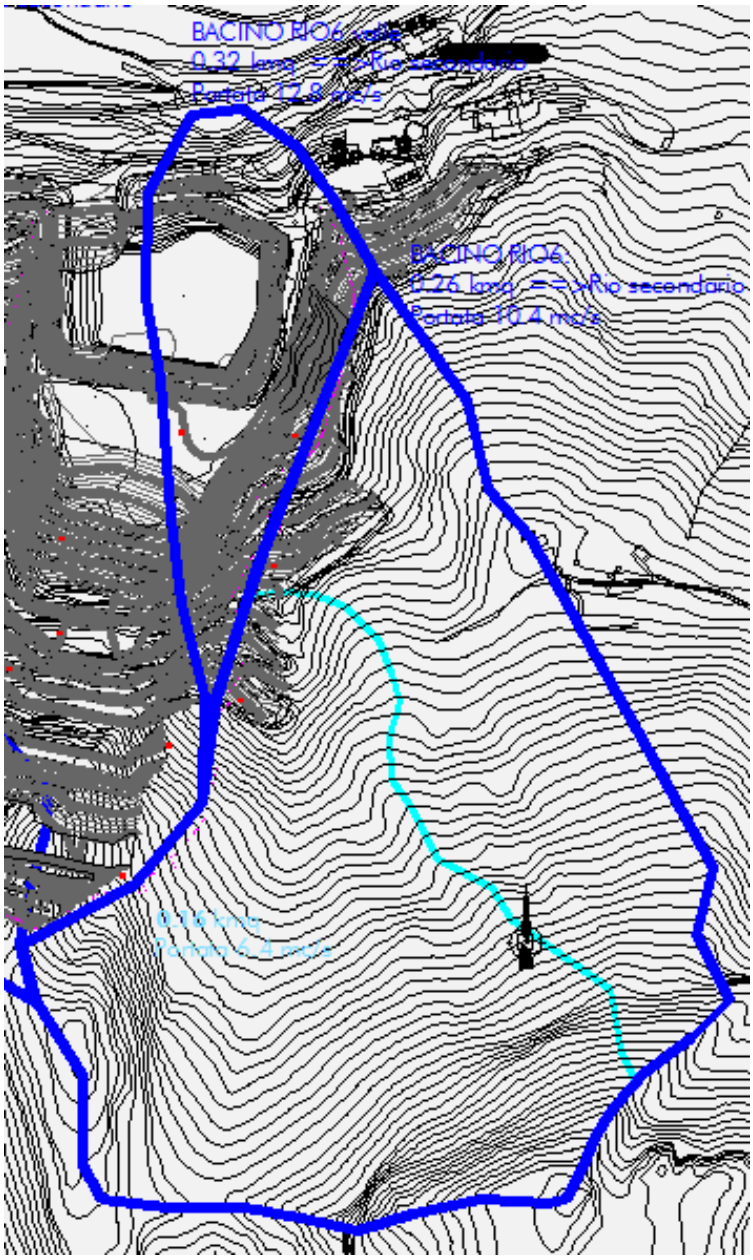
Il rio sottende un bacino di 0.302 km^2, come riportato nella Carta Tecnica riportata sotto, rientra quindi nel reticolo idrografico di secondo livello.



Bacino Rio 5

- **RIO 6**

Il rio sottende un bacino di 0.26 km^2, come riportato nella Carta Tecnica riportata sotto, rientra quindi nel reticolo idrografico di secondo livello.



Bacino Rio 6

CALCOLO DELLE PORTATE DEI RII

Per i corsi d'acqua minori nonché per gli affluenti dei torrenti principali con bacino inferiore a 2 km^2 (secondo allegato n° 2 norme di Piano di Bacino del fiume Roia - Ambito n° 1 Roia), salvo diversa indicazione prevista nel Piano stesso si assume una portata massima ottenuta utilizzando un contributo unitario pari a 40 m^3/s per ogni chilometro quadrato di superficie del bacino sotteso da assumere come portata duecentennale.

$$Q_{200} = 40 \times A \qquad [m^3/s]$$

dove A =superficie drenata espressa in km^2

valori da adottarsi per la determinazione delle portate Q50 e Q500 sono rispettivamente calcolate come segue:

$$Q_{50} = Q_{200} \times 0.69 \qquad [m^3/s]$$
$$Q_{500} = Q_{200} \times 1.20 \qquad [m^3/s]$$

Si ottengono per i vari rii quindi i seguenti valori di portata:

- **RIO 1**
  Q_{200} = 40 x 0.0423 = 1.692 m^3/s
  Q_{50} = 1.692 x 0.69 = 1.167 m^3/s
  Q_{500} = 1.692 x 1.2 = 2.03 m^3/s

- **RIO 2**
  Q_{200} = 40 x 0.0966 = 3.86 m^3/s
  Q_{50} = 3.86 x 0.69 = 2.66 m^3/s
  Q_{500} = 3.86 x 1.2 = 4.63 m^3/s

- **RIO 3**
  Q_{200} = 40 x 0.063 = 2.52 m^3/s
  Q_{50} = 2.52 x 0.69 = 1.73 m^3/s
  Q_{500} = 2.52 x 1.2 = 3.02 m^3/s

- **RIO 4**
  Q_{200} = 40 x 0.063 = 2.52 m^3/s
  Q_{50} = 2.52 x 0.69 = 1.73 m^3/s
  Q_{500} = 2.52 x 1.2 = 3.02 m^3/s

- **RIO 5**
  Q_{200} = 40 x 0.302 = 12.1 m^3/s
  Q_{50} = 12.1 x 0.69 = 8.35 m^3/s
  Q_{500} = 12.1 x 1.2 = 14.52 m^3/s

- **RIO 6**

  Q_{200} = 40 x 0.260 = 10.4 m^3/s

  Q_{50} = 10.4 x 0.69 = 7.17 m^3/s

  Q_{500} = 10.4 x 1.2 = 12.48 m^3/s

- **RIO 6 - valle**

  Q_{200} = 40 x 0.32 = 12.8 m^3/s

  Q_{50} = 12.8 x 0.69 = 8.83 m^3/s

  Q_{500} = 12.8 x 1.2 = 15.36 m^3/s

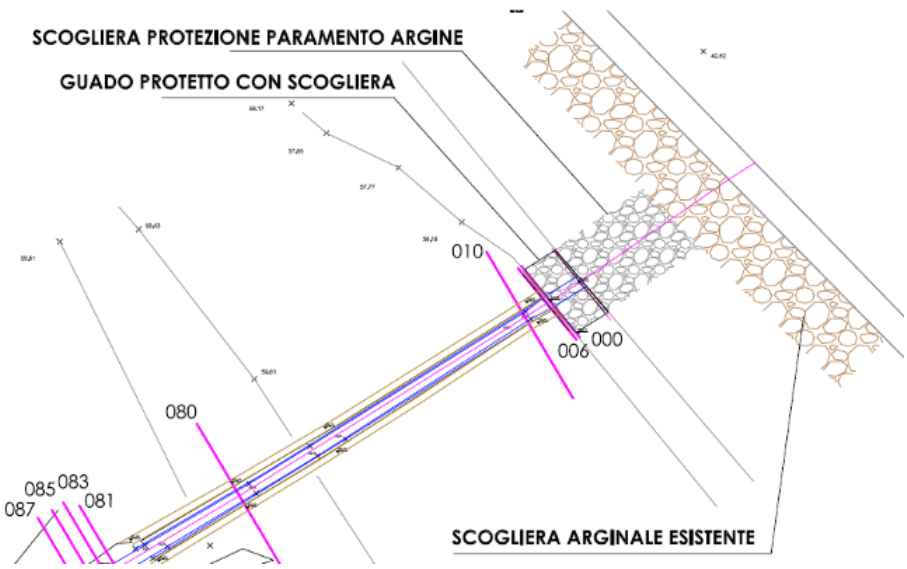
INQUADRAMENTO IDRAULICO

Il calcolo idraulico oggetto del presente progetto è stato effettuato nei rii interni alla Cava individuati in planimetria allegata.
Il calcolo idraulico è stato eseguito in regime di moto permanente con l'utilizzo del programma HEC RAS 3.1.

• DESCRIZIONE DEI RII E DEGLI INTERVENTI IN PROGETTO

- **RIO 1 - RIO 2 - RIO 3**

I rii 1, 2 e 3 aventi bacino imbrifero inferiore a 0.1 kmq, individuati quindi nel reticolo minore, sono già in parte provvisoriamente realizzati con una canalizzazione delle acque non adeguata al deflusso della portata duecentennale con adeguato franco di sicurezza.
In fase di progetto va quindi adeguata provvedendo alla sopraelevazione degli argini da effettuare con pietrame di cava. Gli attraversamenti esistenti della pista arginale sono realizzati con tubazioni risultate non conformi e insufficienti, viene quindi prevista la creazione sulla pista arginale di guadi di attraversamento. La zona del guado verrà protetta con una scogliera cosi come il paramento del'argine verso il Torrente Bevera fino a raccordarsi con la scogliera esistente.





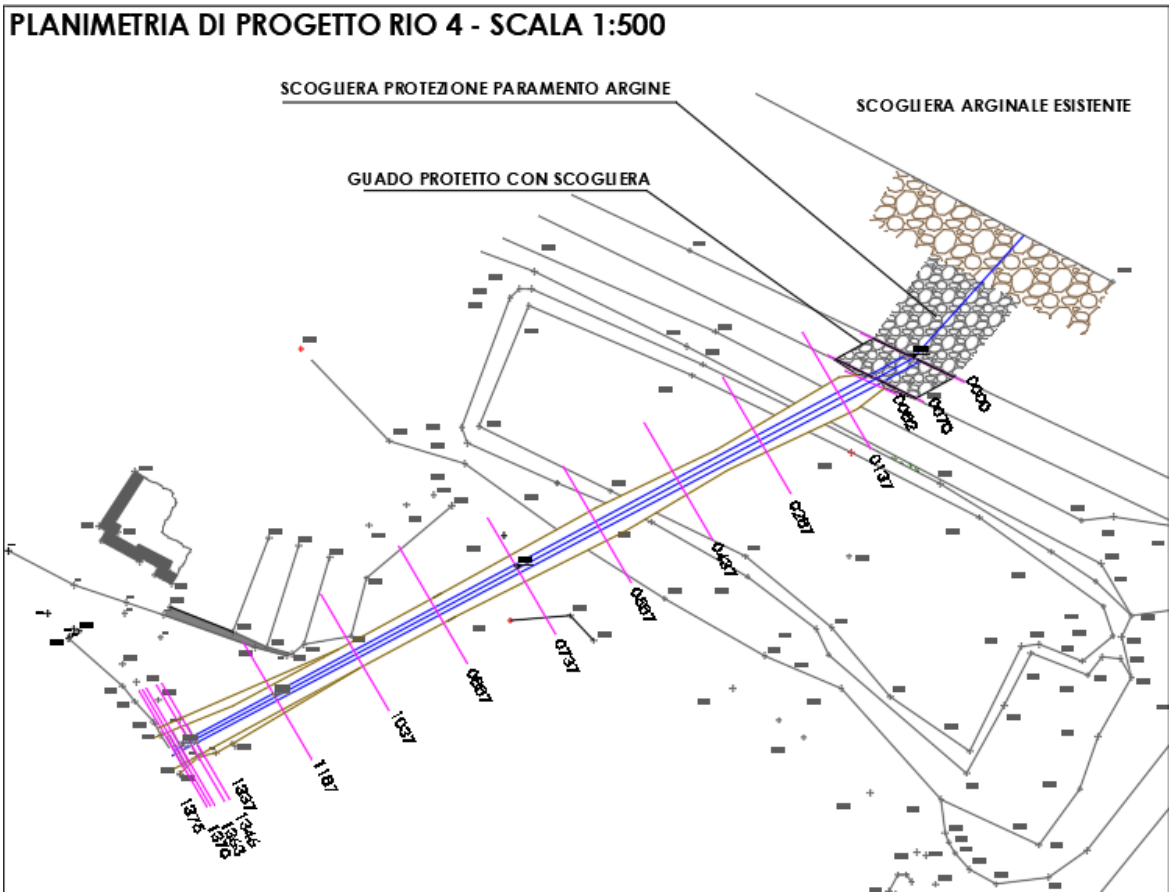
Adeguamento alveo esistente rii 1, 2, 3

Per i particolari si rimanda agli elaborati grafici allegati:

- Tav. h16 – RIO 1
- Tav. h17 – RIO 2
- Tav. h18 – RIO 3

- **RIO 4**

Il rio 4 attualmente scarica in un fosso di grondaia sul fondo del versante, viene quindi proposta una canalizzazione completa a forma trapezia.

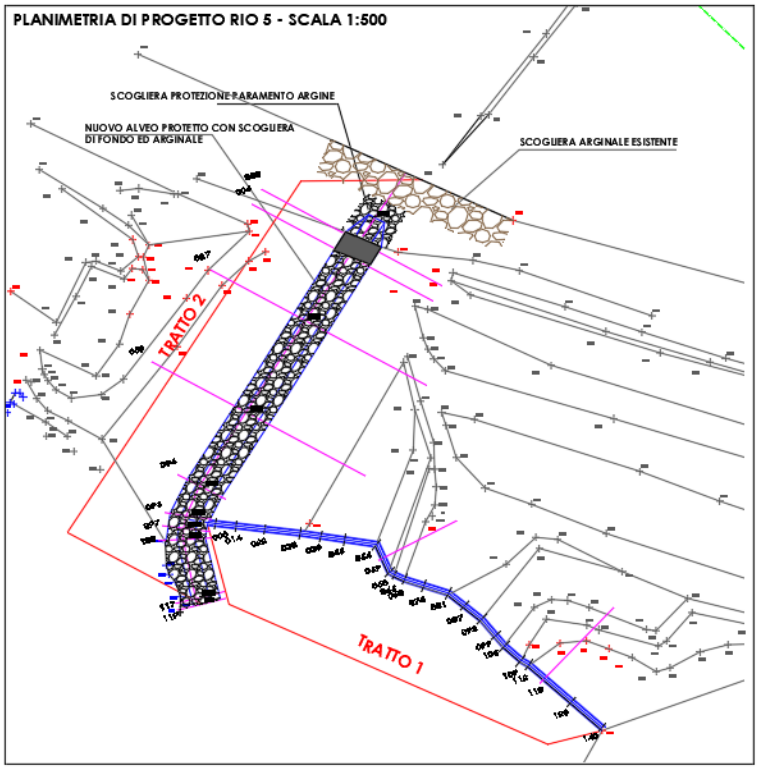


Per i particolari si rimanda agli elaborati grafici allegati:

- Tav. h19 – RIO 4

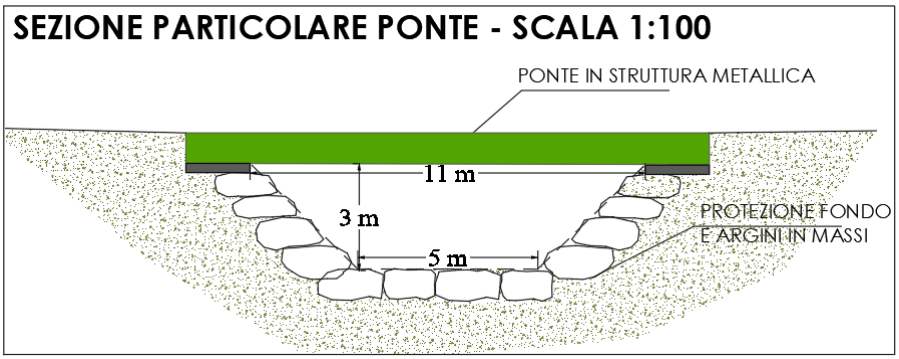
- **RIO 5**

Il rio 5, attualmente è canalizzato all'interno del rilevato e confluisce nel Torrente Bevera attraverso una tubazione che attraversa l'argine. Detta tubazione risulta totalmente insufficiente al deflusso della portata.



In fase di progetto si prevede quindi la completa risistemazione del rio mediante una canalizzazione dell'alveo a sezione trapezia con larghezza di 5 m e altezza argini di 3 m con massi di cava fino ad incontrare l'argine del Torrente Bevera.
Detta soluzione è motivata dalla necessità di garantire la stabilità a lungo termine del fondo e delle sponde. Gli spazi tra i massi garantiranno comunque lo sviluppo di vegetazione spontanea e la permeazione ancorché il materiale sottostante (limo) possa essere considerato pressoché impermeabile.

L'attraversamento della pista arginale viene realizzato mediante la messa in opera di un ponticello a campata unica in struttura metallica, il paramento dell'arginatura sul Bevera viene protetto con massi di cava sino al piede, sulla scogliera esistente.



Oltre al riempimento arginale è stato successivamente realizzato un rilevato in riempimento della vallecola ivi presente subito a valle del rio di cui sopra, nel progetto a suo tempo autorizzato è stata prevista e poi realizzata la costruzione di una tubazione di scarico delle acque diam. 1 metro.

Il rio ivi presente è anch'esso mappato nel reticolo, si tratta di un corso d'acqua del reticolo minuto.

Nel presente progetto è prevista la costruzione di un canale di gronda che intercetta le acque sul limite di monte del riempimento attuale (imbocco della tubazione) e va a scaricare le acque nel rio 5 a lato.

La canalizzazione viene realizzata con protezione degli argini e delle sponde in pietrame di cava.

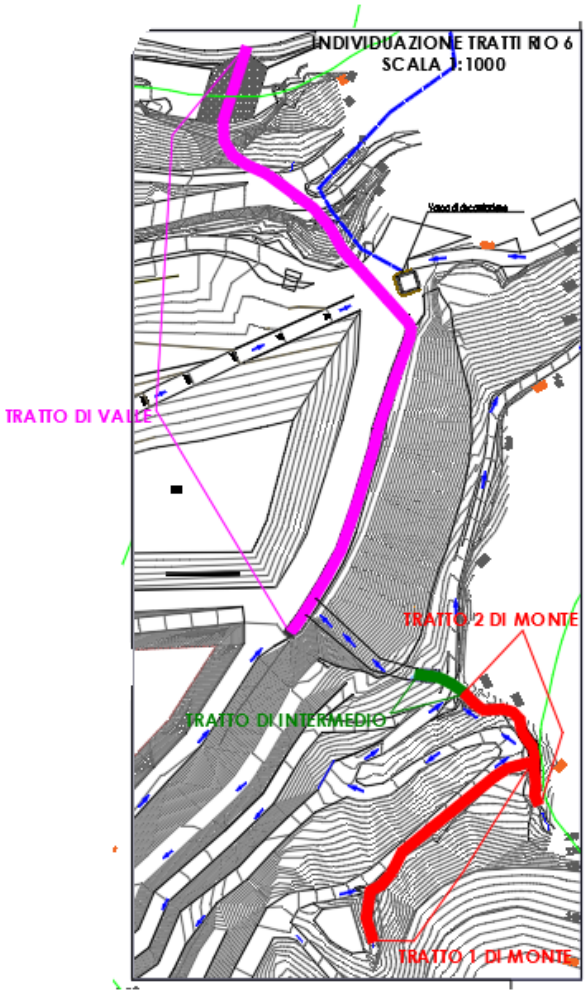
Per i particolari si rimanda agli elaborati grafici allegati:

- Tav. h20 – RIO 5

- **RIO 6 e canalizzazioni nel rilevato**

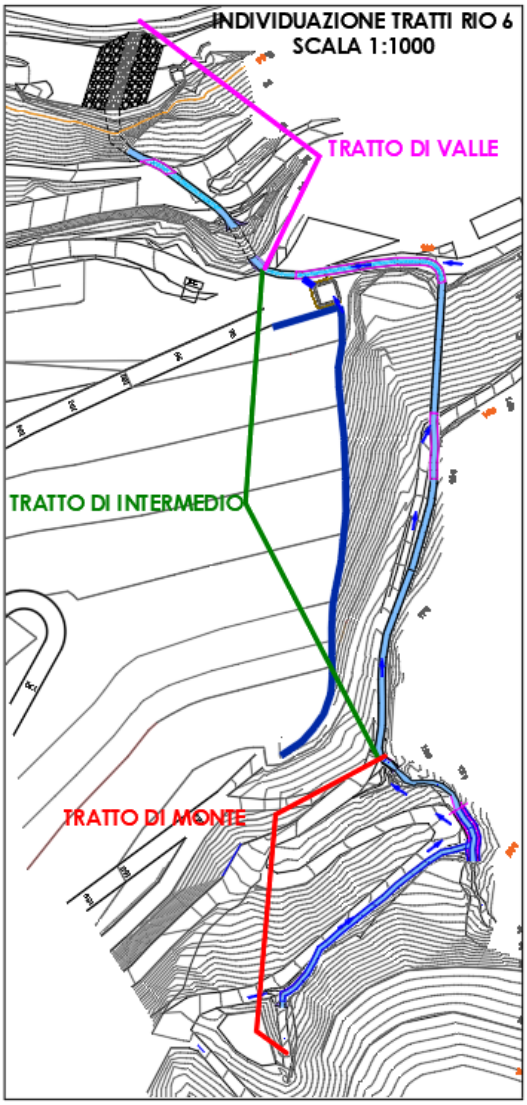
Il rio 6 sottende un bacino imbrifero di 0.26 kmq viene quindi classificato come reticolo idrografico secondario.
Sono previste due diverse fasi, una prima fase di coltivazione della cava e una fase finale.
Il rio 6 è composto da tre tratti, in entrambi le fasi, tratto di monte, tratto intermedio e tratto di valle.

- **Fase intermedia di coltivazione**



Durante la fase di coltivazione il tratto di monte viene realizzato un canale in cemento armato, coperto con un grigliato pesante carrabile in HEA200 dove si necessita il passaggio dei mezzi altrimenti lasciato a cielo aperto.
Da li si va a confluire nel tratto intermedio, nel quale è prevista la sistemazione dell'alveo naturale con scogliera in massi. fino all'attraversamento della pista dove attualmente è presenta la tubazione che scarica a valle sul fronte, da qui parte il tratto di valle realizzato in modo tale da avere attraversamenti entro i 12 metri di lunghezza, e tutte le altre parti dove si necessita il passaggio dei mezzi attraverso la copertura con grigliato pesante. A valle viene realizzata una canalizzazione in scogliera che intercetta il deflusso al piede del versante per defluire poi nel Torrente Bevera.

- **Fase finale di riempimento piazzale di cava**



In fase di chiusura della cava il tratto intermedio viene parzialmente demolito e viene realizzata una canalizzazione mediante scatolare in c.a. a correre in parte lungo la pista del versante est sino ad arrivare al piazzale principale di cava fuoriuscendo nel compluvio naturale in roccia affiorante dove nella fase intermedia è realizzata la fuoriuscita del canale provvisorio.
Durante la fase finale la copertura grigliata posta in opera sul canale verrà rimossa in modo tale che al momento della chiusura della cava il rio rimane a cielo aperto.
Oltre alla canalizzazione principale di cui sopra, vengono mantenute le canalizzazioni di gronda sul rilevato principale, già previste nel progetto autorizzato. Trattasi di due grandi cunette di raccolta delle acque posizionate ai margini del rilevato al fine di raccogliere i deflussi provenienti dalle scarpate soprastanti e quelli delle scarpate del rilevato. Alla quota del piazzale principale sono previste due vasche di calma/raccolta trasporto solido.
La canalizzazione lato est viene immessa nel rio 6 all'altezza del piazzale principale, mentre quella lato ovest, dopo la vasca, viene prolungata fino a defluire a valle nel Torrente Bevera. Sono previsti due attraversamenti mediante strutture metalliche in putrelle con grigliato pesante.

Procedura di calcolo della verifica in moto permanente

La determinazione del profilo di moto permanente, nel tratto d'alveo in esame, è stata condotta mediante l'uso dello specifico codice di calcolo HEC-RAS (U.S. Army Corps of Engineers - Hydrologic Engineering Center; versione 3.1 – novembre 2002).

Il modello determina il profilo di moto permanente, per ogni tratto, scegliendo tra i possibili profili di corrente lenta o veloce quello cui corrisponde la spinta totale maggiore.

Il modello presuppone che siano fornite tutte le informazioni necessarie, ed in particolare la

geometria di un numero sufficiente di sezioni trasversali. Il programma consente di inserire sezioni trasversali fittizie, interpolando quelle rilevate, in modo da assicurare che il passo di discretizzazione spaziale non ecceda un assegnato valore limite.

La procedura utilizzata dal codice citato è basata sulla risoluzione dell'equazione del moto delle correnti a pelo libero nella schematizzazione monodimensionale. Il calcolo delle perdite di carico è effettuato mediante l'equazione di Manning. Nella letteratura anglosassone la procedura in questione è indicata come Standard Step Method.

Le equazioni fondamentali su cui essa si basa sono le seguenti:

$$Y2 + Z2 + \alpha 2 \ V2\ 2 / 2g = Y1 + z1 + \alpha 1\ V1\ 2 / 2g + he$$

$$he = L\ Sf + C \mid \alpha 2V2\ \ 2 / 2g - \alpha 1\ V1\ 2 / 2g \mid$$

dove (con riferimento alla fig. 1):

Y1 , Y2 = profondità della corrente nelle sezioni agli estremi del tratto

Z1 , Z2 = quote del punto più basso del fondo alveo nelle sezioni agli estremi del tratto

V1, V2 = velocità medie (rapporto portata / sezione bagnata)

$\alpha 1$, $\alpha 2$ = coefficienti di ragguaglio dell'energia cinetica

g= accelerazione di gravità

he = perdita di carico

L = lunghezza del tratto (corretta secondo la distribuzione delle portate)

Sc = cadente del carico totale

C = coefficiente di perdita per contrazione - espansione.

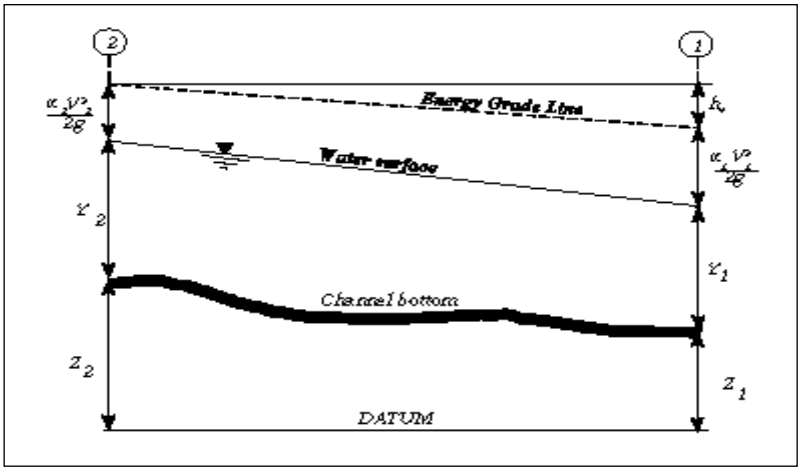


***Figura 1**: Schema di riferimento per il calcolo del deflusso della portata di progetto attraverso il programma di calcolo Hec-Ras.*

Il calcolo è eseguito iterativamente a partire da una condizione al contorno (all'estremo di monte o di valle del corso d'acqua in esame); la soluzione si propaga alla sezione successiva dopo aver bilanciato il carico fra due sezioni contigue con uno scarto assegnato, che nel caso in esame si è posto inferiore a 1 centimetro.
La procedura di calcolo delle coperture contenuta nel programma utilizzato è affidabile solo in caso di condotte chiuse di limitata lunghezza, come per esempio negli attraversamenti.
Per quanto riguarda i salti di fondo, l'equazione di bilancio dell'energia è risolta inserendo in corrispondenza di tali sezioni un termine addizionale di perdita di carico pari al dislivello fra la sezione in oggetto e quella immediatamente a valle, oltre alle perdite per attrito o per contrazione / espansione.
Per i dettagli computazionali si rimanda alla documentazione del codice di calcolo (U.S. Army Corps of Engineers - Hydrologic Engineering Center: HEC - RAS River Analysis System, HYDRAULIC REFERENCE MANUAL; Davis, 2002).

L'applicazione della procedura per la determinazione del profilo di moto permanente associato alla portata di progetto richiede di disporre dei seguenti dati fondamentali, necessari per una corretta modellazione del corso d'acqua e dei manufatti che interferiscono con il suo corso:

- rappresentazione geometrica delle sezioni trasversali e loro posizionamento plani - altimetrico;
- definizione del tipo di corrente (lenta o veloce) nel tronco d'alveo in esame;
- condizioni al contorno di valle o di monte, rispettivamente per correnti lente o veloci;
- caratterizzazione della resistenza dell'alveo mediante la definizione del coefficiente di scabrezza n (secondo Manning) e dei coefficienti di contrazione C_c e di espansione C_e;
- definizione geometrica ed idraulica di eventuali singolarità (coperture, salti di fondo, ponti, etc.).

Verifica idraulica dei rii in esame

Applicando la metodologia illustrata nel paragrafo precedente, è stata effettuata la simulazione, in moto permanente, del deflusso dei vari rii (da 1 a 6) in corrispondenza del tratto esaminato per la portata duecentennale.
Le verifiche idrauliche sono state condotte nella situazione di progetto che assume il terreno nelle condizioni in cui esso verrà a trovarsi a seguito della realizzazione degli interventi.
Il calcolo dei profili di corrente è stato sviluppato mediante il noto codice HEC_RAS dell'USACE.
Negli allegati successivi sono riportate le sezioni trasversali più significative che descrivono le due situazioni, attuale e di progetto.

La schematizzazione di calcolo si basa sulle seguente assunzione: portata costante in ogni tratto considerato, anche nell'eventualità di superamento dei punti estremi delle sezioni; il procedimento consiste nell'immaginare che la sezione sia limitata da argini infinitamente alti.
Quest'ultima ipotesi è congruente con quanto indicato nelle raccomandazioni emanate dall'Autorità di Bacino di Rilievo Regionale, con particolare riferimento alla raccomandazione sulle fasce di inondabilità e alla nota "Rischio idraulico residuale nell'ambito della pianificazione di bacino regionale", al fine di tenere conto di sezioni che, interessate da opere, non possano assicurare capienza certa alla portata di massima piena.

Parametri di scabrezza

Per la caratterizzazione della resistenza degli alvei, da esprimere in termini del coefficiente n di Manning (in [$m^{-1/3}s$]), si è fatto ricorso ai valori riportati nelle tabelle del manuale di riferimento del modello di calcolo prima citato.
Per quanto riguarda i coefficienti di espansione e contrazione, il loro valore è stato assegnato, caso per caso, in funzione delle caratteristiche della coppia di sezioni contigue, rispettivamente nel campo 0.1 / 0.6 per C_c e 0.3 / 0.8 per C_e , con valori tanto più elevati dei coefficienti quanto più brusche sono le variazioni di forma e dimensione delle sezioni.

Condizioni al contorno

Il programma di calcolo richiede, come dati di input, oltre la portata di progetto, anche una condizione al contorno di monte, se il profilo di corrente è veloce o una condizione al contorno di valle, se il profilo di corrente è lento.

Franchi di sicurezza

Nel calcolo del franco di sicurezza, come indicato nel Regolamento Regionale 14 luglio 2011 n° 3 e successive modifiche Regolamento regionale 16 Marzo 2016 n° 1 – *Regolamento recante disposizioni in materia di tutela delle aree di pertinenza dei corsi d'acqua* - Allegato 2 e Normativa di Piano

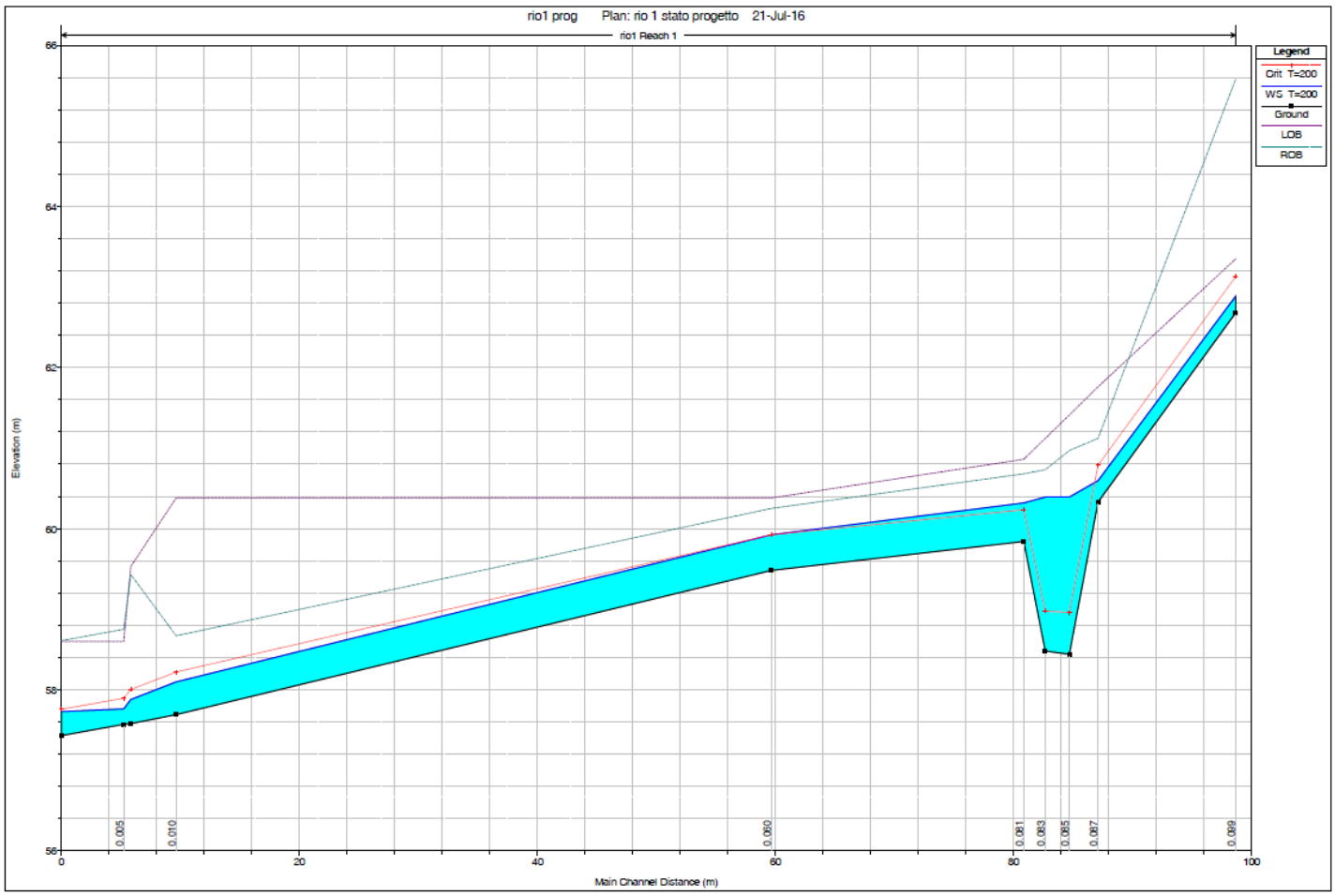
- per i rii ricadenti nel reticolo idrografico minuto (rio 1 - 2 - 3 - 4) si prevede un valore minimo di 30 cm per le arginature.
- per i ricadenti nel reticolo di secondo livello (rio 5 e rio 6) il valore maggiore tra i valori di
    - 50/100 cm per gli argini
    - 100/150 cm per i ponti
    - 150/200 cm per coperture e tombini

      e il carico cinetico della corrente calcolato per ogni sezione ($U^2/2g$)

I risultati dei calcoli sono riportati nella tabella e nei grafici allegati:

VERIFICHE HEC RAS

RIO 1



Profilo del corso d'acqua

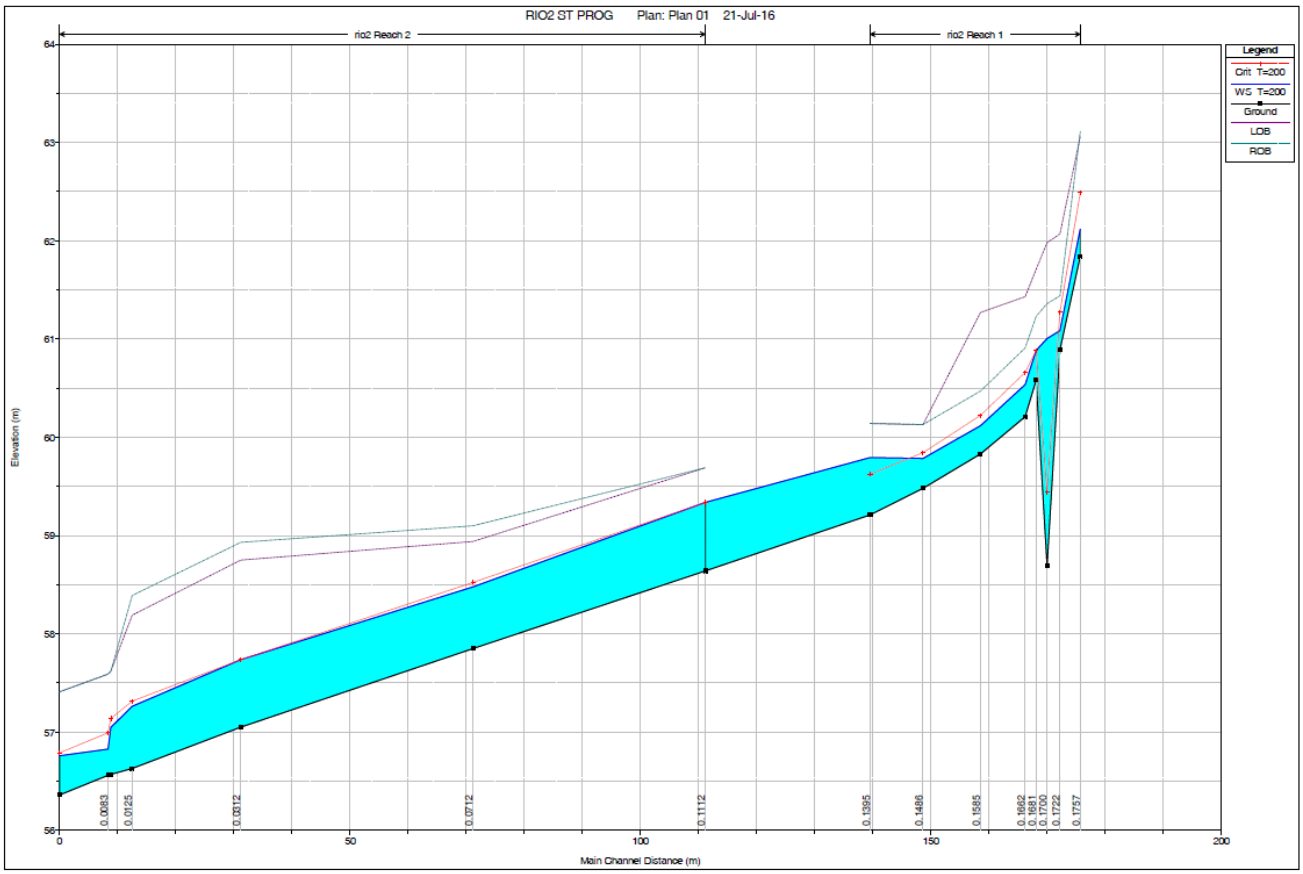
HEC-RAS Plan: rio1 River: rio1 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.099	T=200	1.70	62.68	62.89	63.13	4.64	0.46	63.35	2.69	65.58	1.10	3.35
Reach 1	0.087	T=200	1.70	60.33	60.60	60.79	3.96	1.16	61.76	0.52	61.12	0.80	3.06
Reach 1	0.085	T=200	1.70	58.44	60.39	58.96	0.33	1.02	61.41	0.58	60.97	0.01	0.09
Reach 1	0.083	T=200	1.70	58.48	60.39	58.98	0.32	0.73	61.12	0.34	60.73	0.01	0.09
Reach 1	0.081	T=200	1.70	59.84	60.32	60.23	1.17	0.54	60.86	0.36	60.68	0.07	0.67
Reach 1	0.060	T=200	1.70	59.48	59.92	59.92	2.02	0.46	60.38	0.33	60.25	0.21	1.01
Reach 1	0.010	T=200	1.70	57.69	58.10	58.22	2.91	2.28	60.38	0.57	58.67	0.43	1.51
Reach 1	0.006	T=200	1.70	57.58	57.88	58.00	2.89	1.65	59.53	1.55	59.43	0.42	1.70
Reach 1	0.005	T=200	1.70	57.57	57.76	57.89	3.08	0.84	58.60	0.99	58.75	0.48	2.56
Reach 1	0.000	T=200	1.70	57.43	57.73	57.76	1.74	0.87	58.60	0.88	58.61	0.15	1.20

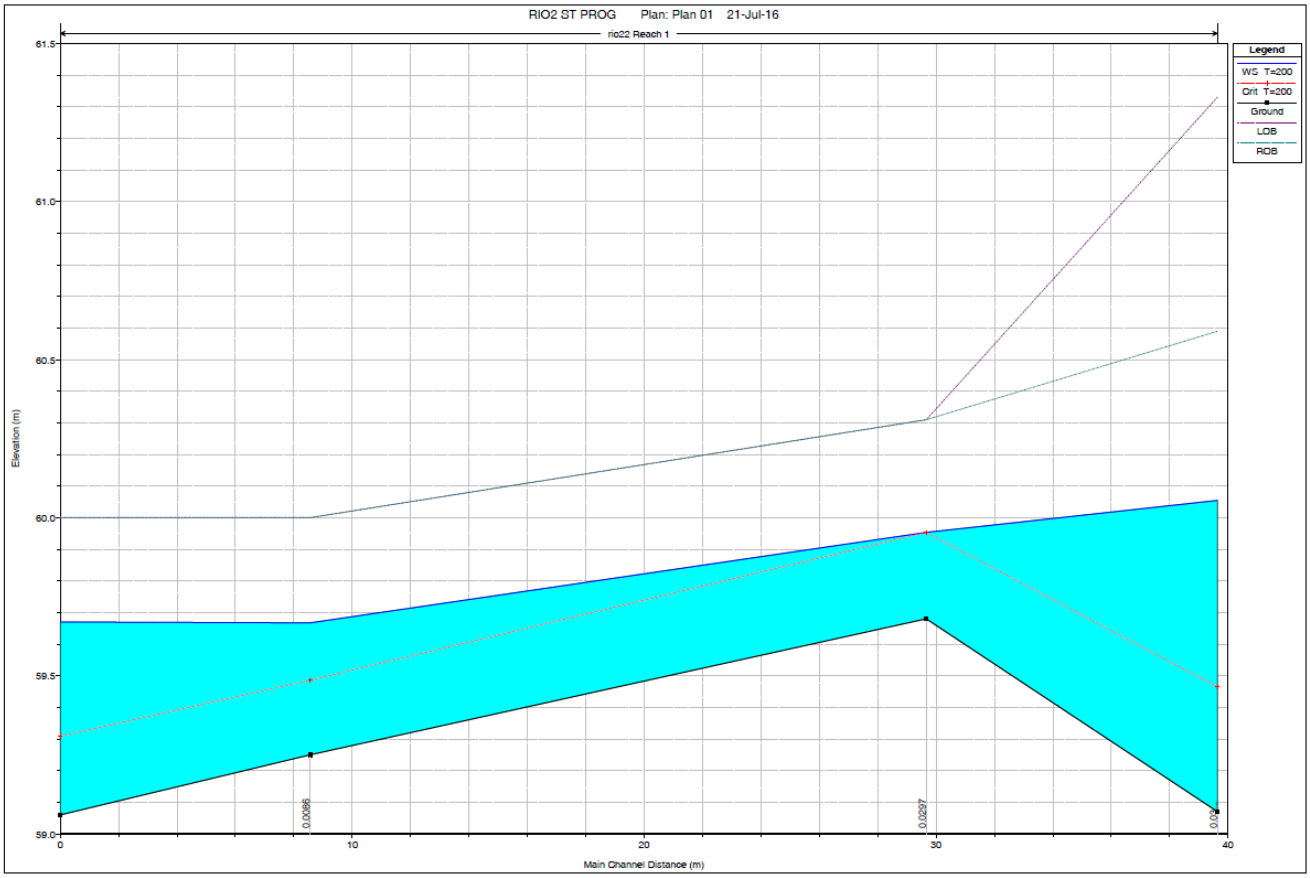
Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

Il calcolo dei profili di rigurgito in fase progettuale per il rio 1 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza previsto, paria 30 cm per il reticolo minore.

RIO 2



Profilo del corso d'acqua



Profilo del corso d'acqua

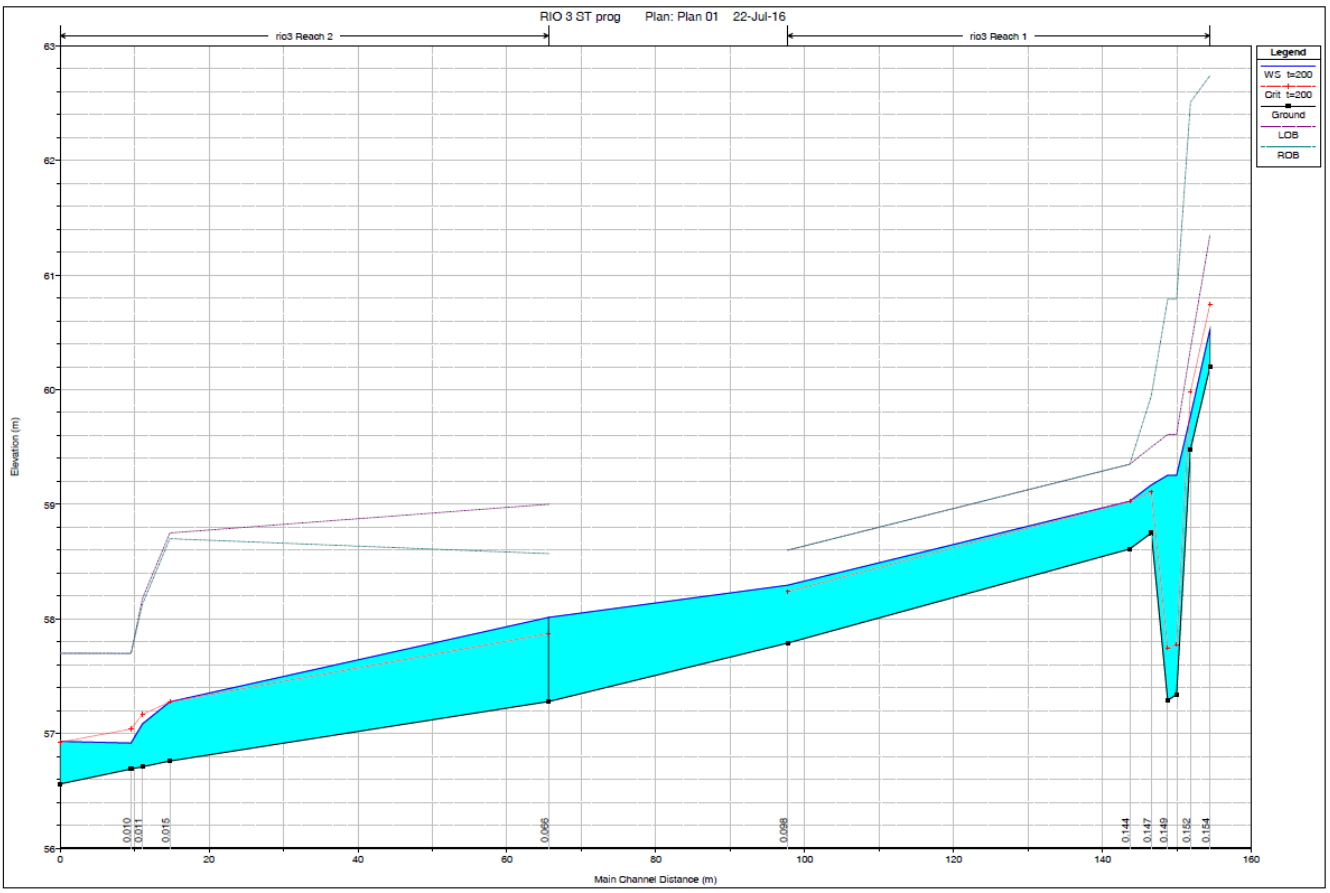
HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio22	Reach 1	0.0396	T=200	1.16	59.07	60.05	59.46	0.26	1.28	61.33	0.54	60.59	0.00	0.10
rio22	Reach 1	0.0297	T=200	1.16	59.68	59.95	59.95	1.33	0.36	60.31	0.36	60.31	0.09	1.01
rio22	Reach 1	0.0086	T=200	1.16	59.25	59.67	59.49	0.74	0.33	60.00	0.33	60.00	0.03	0.40
rio22	Reach 1	0.0000	T=200	1.16	59.06	59.67	59.31	0.45	0.33	60.00	0.33	60.00	0.01	0.21
rio2	Reach 1	0.1757	T=200	2.12	61.84	62.12	62.49	7.42	0.94	63.06	0.99	63.11	2.80	5.48
rio2	Reach 1	0.1722	T=200	2.12	60.89	61.09	61.28	5.04	0.98	62.07	0.35	61.44	1.30	4.96
rio2	Reach 1	0.1700	T=200	2.12	58.69	61.00	59.44	0.40	0.98	61.98	0.36	61.36	0.01	0.12
rio2	Reach 1	0.1681	T=200	2.12	60.58	60.88	60.88	1.51	0.83	61.71	0.35	61.23	0.12	1.01
rio2	Reach 1	0.1662	T=200	2.12	60.21	60.54	60.66	2.73	0.89	61.43	0.37	60.91	0.38	1.80
rio2	Reach 1	0.1585	T=200	2.12	59.83	60.12	60.22	2.59	1.15	61.27	0.35	60.47	0.34	1.74
rio2	Reach 1	0.1486	T=200	2.12	59.48	59.78	59.84	2.11	0.35	60.13	0.35	60.13	0.23	1.36
rio2	Reach 1	0.1395	T=200	2.12	59.21	59.79	59.63	1.09	0.35	60.14	0.35	60.14	0.06	0.53
rio2	Reach 2	0.1112	T=200	3.90	58.64	59.34	59.34	2.12	0.35	59.69	0.35	59.69	0.23	1.01
rio2	Reach 2	0.0712	T=200	3.90	57.85	58.48	58.52	2.31	0.46	58.94	0.62	59.10	0.27	1.17
rio2	Reach 2	0.0312	T=200	3.90	57.05	57.74	57.74	2.13	1.01	58.75	1.19	58.93	0.23	1.01
rio2	Reach 2	0.0125	T=200	3.90	56.63	57.26	57.31	2.42	0.93	58.19	1.13	58.39	0.30	1.19
rio2	Reach 2	0.0088	T=200	3.90	56.57	57.05	57.14	2.78	0.57	57.62	0.57	57.62	0.39	1.32
rio2	Reach 2	0.0083	T=200	3.90	56.56	56.83	56.99	3.35	0.76	57.59	0.76	57.59	0.57	2.36
rio2	Reach 2	0.0000	T=200	3.90	56.36	56.76	56.79	1.92	0.65	57.41	0.65	57.41	0.19	1.14

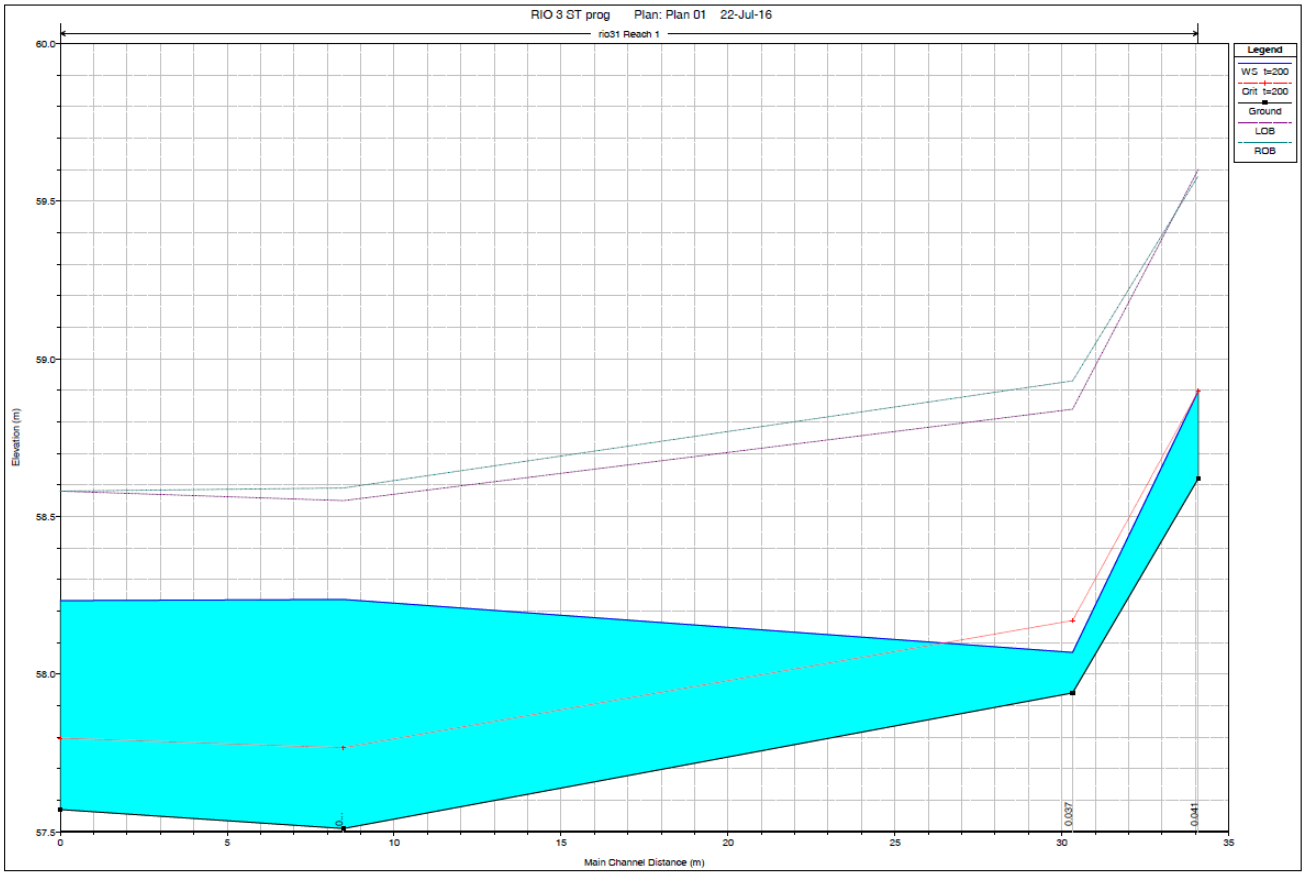
Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

Il calcolo dei profili di rigurgito in fase progettuale per il rio 2 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza previsto, paria 30 cm per il reticolo minore.

RIO 3



Profilo del corso d'acqua



Profilo del corso d'acqua

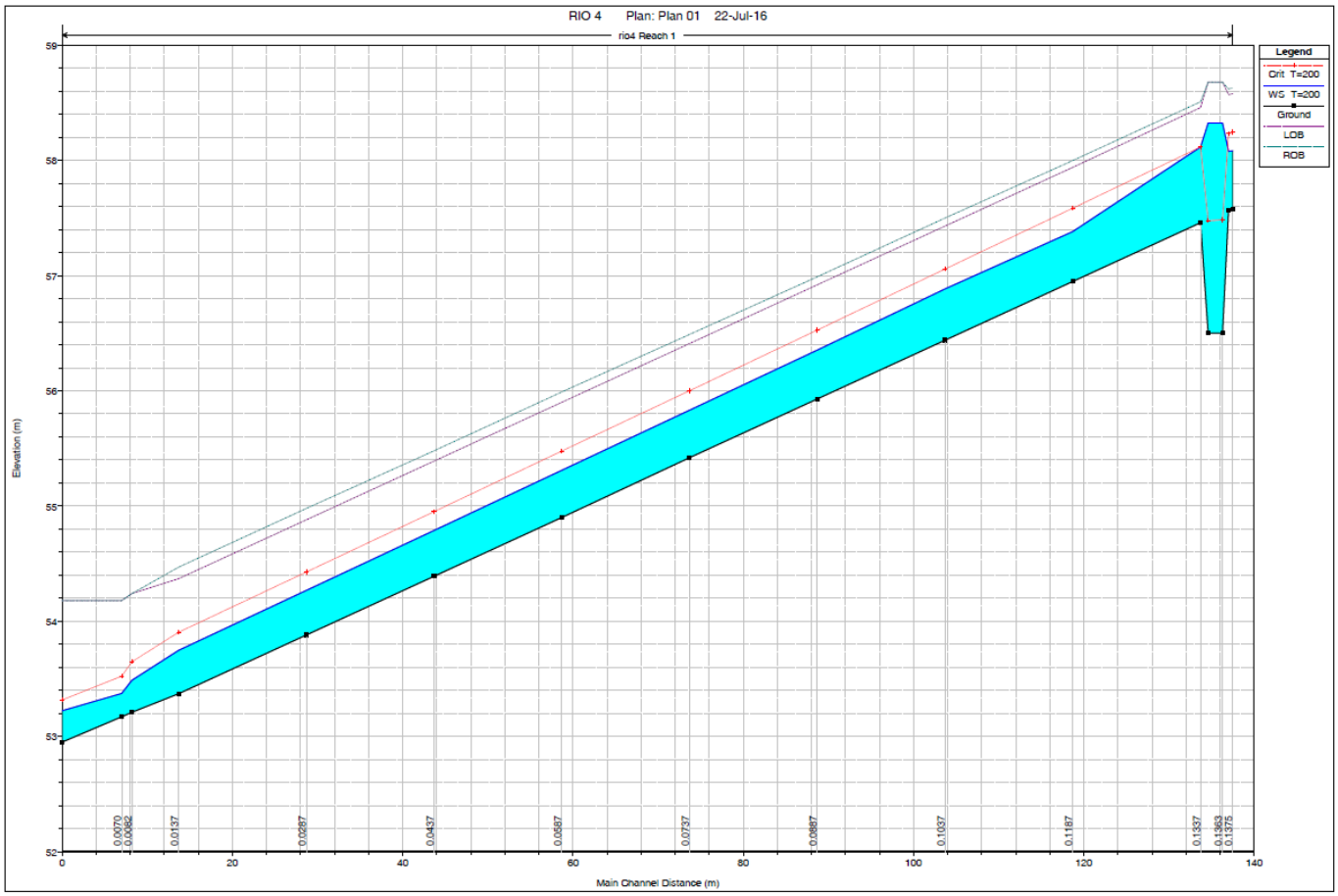
HEC-RAS Plan: Plan 01 Profile: t=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio31	Reach 1	0.041	t=200	0.40	58.62	58.90	58.90	1.27	0.70	59.60	0.68	59.58	0.08	1.02
rio31	Reach 1	0.037	t=200	0.40	57.94	58.07	58.17	3.48	0.77	58.84	0.86	58.93	0.62	4.38
rio31	Reach 1	0.015	t=200	0.40	57.51	58.24	57.77	0.35	0.31	58.55	0.35	58.59	0.01	0.15
rio31	Reach 1	0.007	t=200	0.40	57.57	58.23	57.80	0.36	0.35	58.58	0.35	58.58	0.01	0.16
rio3	Reach 1	0.154	t=200	1.80	60.20	60.53	60.74	5.32	0.83	61.35	2.21	62.74	1.44	4.22
rio3	Reach 1	0.152	t=200	1.80	59.48	59.77	59.98	4.82	0.59	60.36	2.74	62.51	1.19	4.04
rio3	Reach 1	0.150	t=200	1.80	57.34	59.25	57.78	0.26	0.36	59.61	1.54	60.79	0.00	0.07
rio3	Reach 1	0.149	t=200	1.80	57.29	59.25	57.75	0.25	0.36	59.61	1.54	60.79	0.00	0.07
rio3	Reach 1	0.147	t=200	1.80	58.75	59.17	59.11	1.25	0.33	59.50	0.78	59.95	0.08	0.74
rio3	Reach 1	0.144	t=200	1.80	58.61	59.03	59.03	1.86	0.32	59.35	0.32	59.35	0.18	1.01
rio3	Reach 1	0.098	t=200	1.80	57.79	58.29	58.24	1.45	0.31	58.60	0.31	58.60	0.11	0.80
rio3	Reach 2	0.066	t=200	2.52	57.28	58.01	57.87	1.44	0.99	59.00	0.56	58.57	0.11	0.66
rio3	Reach 2	0.015	t=200	2.52	56.76	57.28	57.28	2.19	1.47	58.75	1.42	58.70	0.25	1.00
rio3	Reach 2	0.011	t=200	2.52	56.71	57.08	57.17	2.55	1.09	58.18	1.04	58.13	0.33	1.37
rio3	Reach 2	0.010	t=200	2.52	56.69	56.92	57.04	2.83	0.78	57.70	0.78	57.70	0.41	2.19
rio3	Reach 2	0.000	t=200	2.52	56.56	56.93	56.92	1.55	0.77	57.70	0.77	57.70	0.12	0.97

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

Il calcolo dei profili di rigurgito in fase progettuale per il rio 3 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza previsto, paria 30 cm per il reticolo minore.

RIO 4



Profilo del corso d'acqua

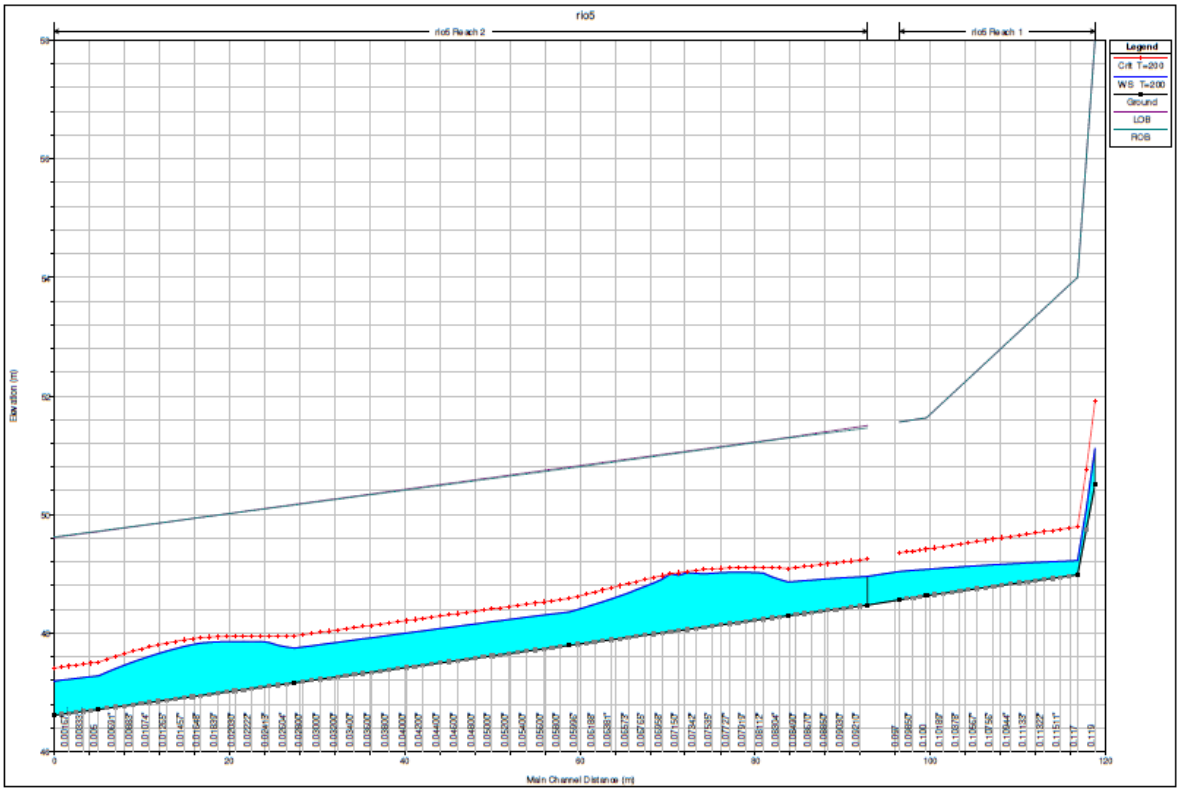
HEC-RAS Plan: Plan 01 River: rio4 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.1375	T=200	2.52	57.58	58.08	58.25	3.19	0.50	58.58	0.55	58.63	0.52	1.67
Reach 1	0.1370	T=200	2.52	57.57	58.08	58.23	3.14	0.49	58.57	0.54	58.62	0.50	1.64
Reach 1	0.1363	T=200	2.52	56.50	58.33	57.49	1.05	0.35	58.68	0.35	58.68	0.06	0.35
Reach 1	0.1346	T=200	2.52	56.50	58.33	57.48	1.02	0.35	58.68	0.35	58.68	0.05	0.33
Reach 1	0.1337	T=200	2.52	57.46	58.12	58.12	2.17	0.34	58.46	0.39	58.51	0.24	1.01
Reach 1	0.1187	T=200	2.52	56.95	57.38	57.59	3.58	0.56	57.94	0.62	58.00	0.65	1.98
Reach 1	0.1037	T=200	2.52	56.44	56.88	57.06	3.29	0.55	57.43	0.62	57.50	0.55	1.79
Reach 1	0.0887	T=200	2.52	55.93	56.35	56.53	3.31	0.57	56.92	0.64	56.99	0.56	1.83
Reach 1	0.0737	T=200	2.52	55.42	55.83	56.00	3.27	0.58	56.41	0.66	56.49	0.54	1.82
Reach 1	0.0587	T=200	2.52	54.90	55.31	55.48	3.24	0.59	55.90	0.68	55.99	0.54	1.83
Reach 1	0.0437	T=200	2.52	54.39	54.79	54.95	3.21	0.60	55.39	0.69	55.48	0.53	1.83
Reach 1	0.0287	T=200	2.52	53.88	54.27	54.43	3.18	0.61	54.88	0.71	54.98	0.52	1.83
Reach 1	0.0137	T=200	2.52	53.37	53.75	53.90	3.15	0.62	54.37	0.72	54.47	0.51	1.83
Reach 1	0.0082	T=200	2.52	53.21	53.49	53.65	3.25	0.75	54.24	0.75	54.24	0.54	2.11
Reach 1	0.0070	T=200	2.52	53.17	53.37	53.52	3.35	0.81	54.18	0.81	54.18	0.57	2.74
Reach 1	0.0000	T=200	2.52	52.95	53.22	53.32	2.42	0.96	54.18	0.96	54.18	0.30	1.72

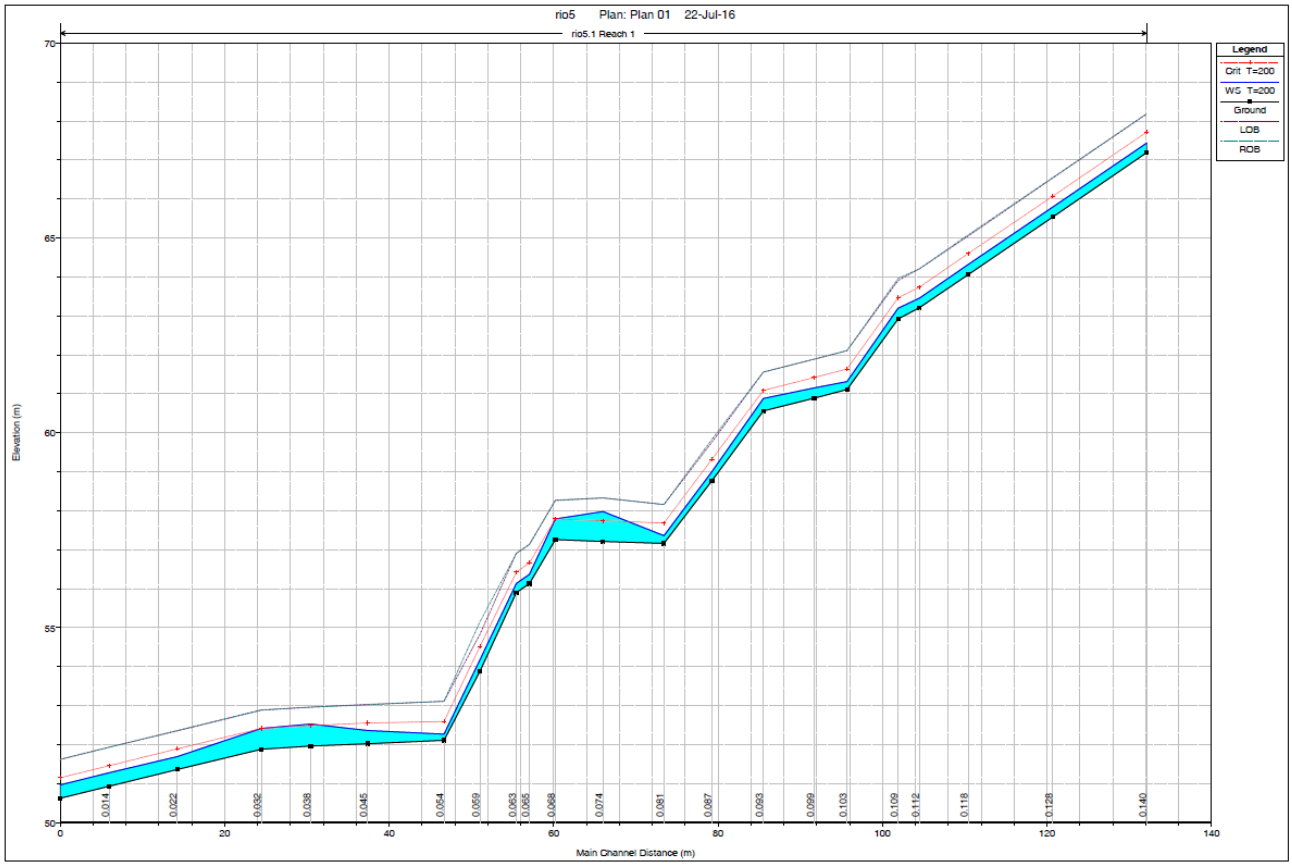
Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

Il calcolo dei profili di rigurgito in fase progettuale per il rio 4 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza previsto, paria 30 cm per il reticolo minore.

RIO 5



Profilo del corso d'acqua – Rio 5



Profilo del corso d'acqua – Rio 5.1

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Froude # Chl	Vel Head
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)		(m)
rio5.1	Reach 1	0.140	T=200	1.60	67.19	67.43	67.72	4.99	0.75	68.18	0.76	68.19	3.30	1.27
rio5.1	Reach 1	0.128	T=200	1.60	65.54	65.79	66.07	4.90	0.75	66.54	0.76	66.55	3.21	1.22
rio5.1	Reach 1	0.118	T=200	1.60	64.06	64.32	64.60	4.91	0.73	65.05	0.76	65.08	3.22	1.23
rio5.1	Reach 1	0.112	T=200	1.60	63.21	63.46	63.74	4.93	0.75	64.21	0.75	64.21	3.24	1.24
rio5.1	Reach 1	0.109	T=200	1.60	62.92	63.20	63.46	4.67	0.71	63.91	0.76	63.96	2.99	1.11
rio5.1	Reach 1	0.103	T=200	1.60	61.11	61.31	61.64	6.02	0.80	62.11	0.80	62.11	4.34	1.84
rio5.1	Reach 1	0.099	T=200	1.60	60.89	61.15	61.42	4.65	0.74	61.89	0.74	61.89	2.98	1.10
rio5.1	Reach 1	0.093	T=200	1.60	60.56	60.88	61.09	3.76	0.68	61.56	0.68	61.56	2.19	0.72
rio5.1	Reach 1	0.087	T=200	1.60	58.77	59.00	59.32	5.90	0.76	59.76	0.83	59.83	4.22	1.78
rio5.1	Reach 1	0.081	T=200	1.60	57.16	57.36	57.68	6.08	0.80	58.16	0.80	58.16	4.43	1.89
rio5.1	Reach 1	0.074	T=200	1.60	57.21	57.98	57.74	1.46	0.35	58.33	0.35	58.33	0.56	0.11
rio5.1	Reach 1	0.068	T=200	1.60	57.26	57.79	57.79	2.18	0.48	58.27	0.47	58.26	1.00	0.24
rio5.1	Reach 1	0.065	T=200	1.60	56.13	56.36	56.66	5.31	0.77	57.13	0.78	57.14	3.61	1.44
rio5.1	Reach 1	0.063	T=200	1.60	55.90	56.13	56.42	5.18	0.78	56.91	0.77	56.90	3.54	1.37
rio5.1	Reach 1	0.059	T=200	1.60	53.88	54.18	54.52	6.57	0.65	54.83	0.97	55.15	4.92	2.20
rio5.1	Reach 1	0.054	T=200	1.60	52.11	52.27	52.59	6.85	0.84	53.11	0.84	53.11	5.62	2.39
rio5.1	Reach 1	0.045	T=200	1.60	52.02	52.36	52.55	3.56	0.67	53.03	0.66	53.02	2.02	0.65
rio5.1	Reach 1	0.038	T=200	1.60	51.96	52.53	52.49	2.02	0.43	52.96	0.43	52.96	0.90	0.21
rio5.1	Reach 1	0.032	T=200	1.60	51.88	52.41	52.41	2.18	0.47	52.88	0.48	52.89	1.00	0.24
rio5.1	Reach 1	0.022	T=200	1.60	51.36	51.69	51.89	3.61	0.66	52.35	0.67	52.36	2.06	0.66
rio5.1	Reach 1	0.014	T=200	1.60	50.93	51.28	51.46	3.46	0.65	51.93	0.65	51.93	1.94	0.61
rio5.1	Reach 1	0.008	T=200	1.60	50.62	50.96	51.15	3.48	0.66	51.62	0.66	51.62	1.95	0.62
rio5	Reach 1	0.119	T=200	12.10	50.50	51.12	51.91	8.80	7.28	58.40	7.28	58.40	3.76	3.95
rio5	Reach 1	0.117	T=200	12.10	48.98	49.22	49.79	9.81	4.78	54.00	4.78	54.00	6.48	4.90
rio5	Reach 1	0.100	T=200	12.10	48.63	49.03	49.41	5.44	2.60	51.63	2.60	51.63	2.83	1.51
rio5	Reach 1	0.097	T=200	12.10	48.56	49.00	49.35	5.00	2.56	51.56	2.56	51.56	2.49	1.28
rio5	Reach 2	0.093	T=200	12.10	48.47	48.93	49.25	4.67	2.57	51.50	2.53	51.46	2.32	1.11
rio5	Reach 2	0.084	T=200	12.10	48.29	48.85	49.09	3.92	2.45	51.30	2.44	51.29	1.76	0.78
rio5	Reach 2	0.059	T=200	12.10	47.79	48.40	48.58	3.52	2.40	50.80	2.38	50.78	1.51	0.63
rio5	Reach 2	0.027	T=200	12.10	47.16	47.76	47.95	3.59	2.41	50.17	2.40	50.16	1.56	0.66
rio5	Reach 2	0.005	T=200	12.10	46.71	47.32	47.51	3.57	2.39	49.71	2.40	49.72	1.54	0.65
rio5	Reach 2	0.000	T=200	12.10	46.61	47.22	47.41	3.57	2.39	49.61	2.40	49.62	1.54	0.65

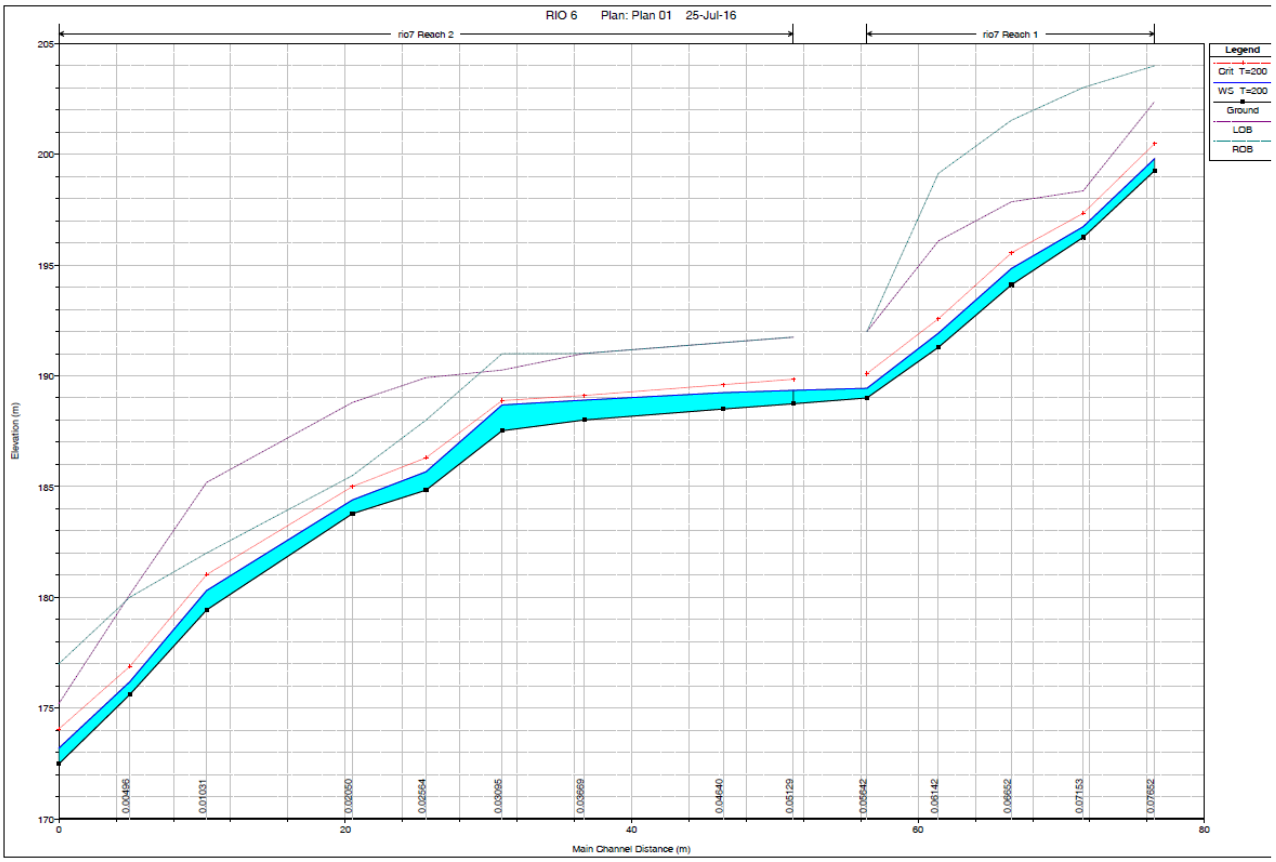
Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

Il calcolo dei profili di rigurgito in fase progettuale per il rio 5 e per il suo affluente rio 5.1 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza previsto,

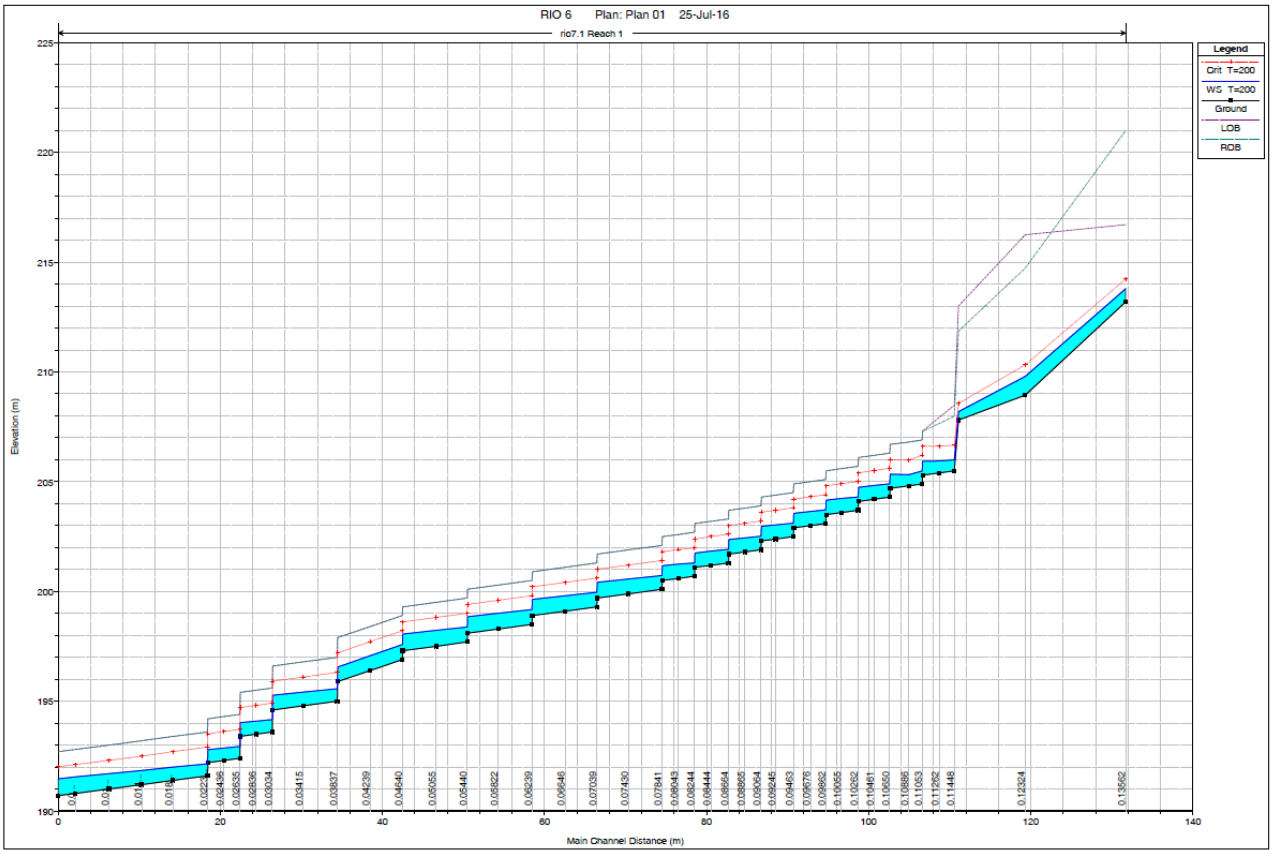
- nel rio 5.1, come previsto per il reticolo minore, paria 30 cm
- nel rio 5, come previsto per il reticolo secondario il valore maggiore tra 100 cm e il carico cinetico della corrente calcolato per ogni sezione ($U^2/2g$)

RIO 6 - FASE di COLTIVAZIONE

- **1° tratto di monte**



Profilo del corso d'acqua



Profilo del corso d'acqua

HEC-RAS Plan: Plan 01 Profile: T=200

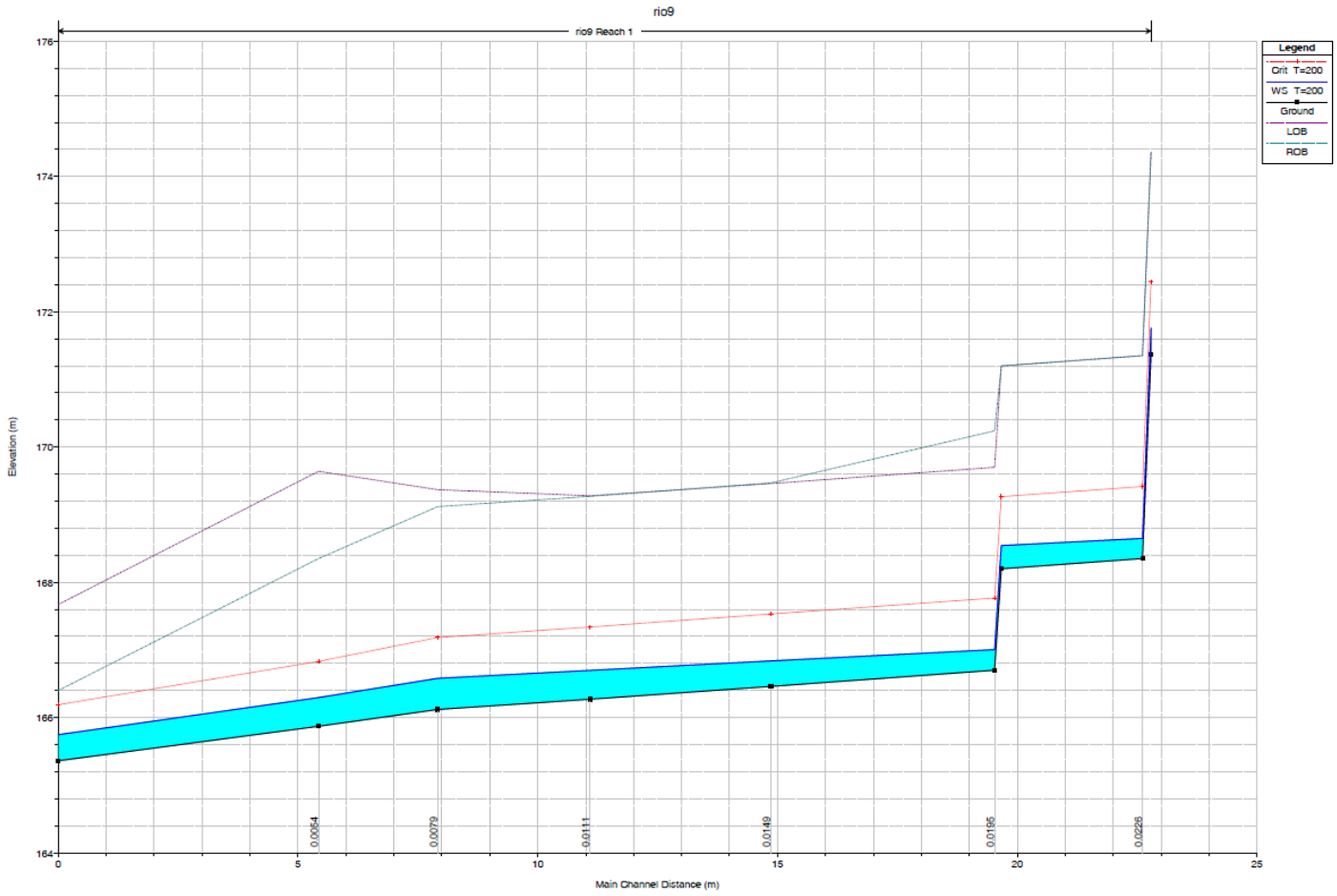
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.13562	T=200	10.40	213.19	213.80	214.23	6.37	2.91	216.71	7.20	221.00	2.07	3.53
rio7.1	Reach 1	0.12324	T=200	10.40	208.94	209.80	210.33	6.90	6.45	216.25	4.93	214.73	2.43	3.35
rio7.1	Reach 1	0.11501	T=200	10.40	207.81	208.19	208.57	5.63	4.81	213.00	3.67	211.86	1.62	3.20
rio7.1	Reach 1	0.11448	T=200	10.40	205.50	206.00	206.66	8.31	2.48	208.48	1.99	207.99	3.52	3.99
rio7.1	Reach 1	0.11262	T=200	10.40	205.40	205.95	206.62	7.92	1.98	207.93	1.70	207.65	3.20	3.57
rio7.1	Reach 1	0.11058	T=200	10.40	205.30	205.93	206.61	7.48	1.38	207.31	1.37	207.30	2.85	3.01
rio7.1	Reach 1	0.11053	T=200	10.40	204.90	205.49	206.21	7.98	1.41	206.90	1.41	206.90	3.24	3.31
rio7.1	Reach 1	0.10886	T=200	10.40	204.81	205.32	205.98	7.86	1.49	206.81	1.49	206.81	3.15	3.52
rio7.1	Reach 1	0.10657	T=200	10.40	204.70	205.34	206.00	7.28	1.36	206.70	1.36	206.70	2.70	2.90
rio7.1	Reach 1	0.10650	T=200	10.40	204.30	204.90	205.61	7.79	1.40	206.30	1.40	206.30	3.09	3.20
rio7.1	Reach 1	0.10461	T=200	10.40	204.20	204.83	205.51	7.49	1.37	206.20	1.37	206.20	2.86	3.02
rio7.1	Reach 1	0.10267	T=200	10.40	204.10	204.75	205.40	7.23	1.35	206.10	1.35	206.10	2.66	2.87
rio7.1	Reach 1	0.10262	T=200	10.40	203.70	204.31	205.01	7.74	1.39	205.70	1.39	205.70	3.06	3.18
rio7.1	Reach 1	0.10055	T=200	10.40	203.59	204.24	204.91	7.41	1.36	205.60	1.35	205.59	2.80	2.96
rio7.1	Reach 1	0.09868	T=200	10.40	203.50	204.16	204.81	7.16	1.34	205.50	1.34	205.50	2.61	2.82
rio7.1	Reach 1	0.09862	T=200	10.40	203.10	203.72	204.41	7.68	1.38	205.10	1.38	205.10	3.01	3.13
rio7.1	Reach 1	0.09676	T=200	10.40	203.00	203.65	204.32	7.39	1.35	205.00	1.36	205.01	2.79	2.96
rio7.1	Reach 1	0.09468	T=200	10.40	202.90	203.56	204.21	7.13	1.34	204.90	1.34	204.90	2.59	2.81
rio7.1	Reach 1	0.09463	T=200	10.40	202.50	203.11	203.81	7.66	1.39	204.50	1.39	204.50	2.99	3.13
rio7.1	Reach 1	0.09245	T=200	10.40	202.39	203.03	203.70	7.32	1.36	204.39	1.36	204.39	2.73	2.92
rio7.1	Reach 1	0.09068	T=200	10.40	202.30	202.97	203.61	7.09	1.33	204.30	1.33	204.30	2.56	2.78
rio7.1	Reach 1	0.09064	T=200	10.40	201.90	202.52	203.21	7.62	1.38	203.90	1.38	203.90	2.96	3.10
rio7.1	Reach 1	0.08865	T=200	10.40	201.80	202.44	203.11	7.33	1.36	203.80	1.36	203.80	2.74	2.92
rio7.1	Reach 1	0.08667	T=200	10.40	201.70	202.37	203.01	7.07	1.33	203.70	1.33	203.70	2.55	2.77
rio7.1	Reach 1	0.08664	T=200	10.40	201.30	201.92	202.61	7.61	1.38	203.30	1.38	203.30	2.95	3.09
rio7.1	Reach 1	0.08444	T=200	10.40	201.19	201.84	202.50	7.27	1.36	203.20	1.35	203.19	2.70	2.88
rio7.1	Reach 1	0.08248	T=200	10.40	201.10	201.75	202.38	7.06	1.35	203.10	1.35	203.10	2.54	2.80
rio7.1	Reach 1	0.08244	T=200	10.40	200.70	201.30	201.98	7.59	1.40	202.70	1.40	202.70	2.94	3.13
rio7.1	Reach 1	0.08043	T=200	10.40	200.59	201.25	201.90	7.26	1.34	202.59	1.35	202.60	2.69	2.88
rio7.1	Reach 1	0.07846	T=200	10.40	200.50	201.17	201.81	7.00	1.33	202.50	1.33	202.50	2.50	2.73
rio7.1	Reach 1	0.07841	T=200	10.40	200.10	200.72	201.41	7.54	1.38	202.10	1.38	202.10	2.90	3.05
rio7.1	Reach 1	0.07430	T=200	10.40	199.89	200.57	201.20	6.99	1.33	201.90	1.32	201.89	2.49	2.72
rio7.1	Reach 1	0.07043	T=200	10.40	199.70	200.42	201.01	6.58	1.28	201.70	1.28	201.70	2.21	2.49
rio7.1	Reach 1	0.07039	T=200	10.40	199.30	199.96	200.61	7.17	1.34	201.30	1.34	201.30	2.62	2.82
rio7.1	Reach 1	0.06646	T=200	10.40	199.10	199.80	200.41	6.73	1.30	201.10	1.30	201.10	2.31	2.56
rio7.1	Reach 1	0.06243	T=200	10.40	198.90	199.64	200.21	6.37	1.26	200.90	1.26	200.90	2.07	2.36
rio7.1	Reach 1	0.06239	T=200	10.40	198.50	199.18	199.81	6.99	1.32	200.50	1.32	200.50	2.49	2.72
rio7.1	Reach 1	0.05822	T=200	10.40	198.29	199.01	199.60	6.57	1.28	200.29	1.28	200.29	2.20	2.48
rio7.1	Reach 1	0.05443	T=200	10.40	198.10	198.85	199.41	6.27	1.25	200.10	1.25	200.10	2.01	2.31
rio7.1	Reach 1	0.05440	T=200	10.40	197.70	198.38	199.01	6.90	1.32	199.70	1.32	199.70	2.43	2.67
rio7.1	Reach 1	0.05055	T=200	10.40	197.50	198.23	198.82	6.52	1.27	199.50	1.28	199.51	2.17	2.45

HEC-RAS Plan: Plan 01 Profile: T=200 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.04643	T=200	10.40	197.30	198.06	198.61	6.22	1.24	199.30	1.24	199.30	1.97	2.28
rio7.1	Reach 1	0.04640	T=200	10.40	196.90	197.59	198.21	6.86	1.31	198.90	1.31	198.90	2.40	2.65
rio7.1	Reach 1	0.04239	T=200	10.40	196.39	197.07	197.71	7.03	1.34	198.41	1.32	198.39	2.52	2.74
rio7.1	Reach 1	0.03841	T=200	10.40	195.90	196.56	197.21	7.16	1.34	197.90	1.34	197.90	2.62	2.82
rio7.1	Reach 1	0.03837	T=200	10.40	195.00	195.57	196.31	8.30	1.43	197.00	1.43	197.00	3.51	3.51
rio7.1	Reach 1	0.03415	T=200	10.40	194.79	195.42	196.10	7.54	1.37	196.79	1.37	196.79	2.90	3.05
rio7.1	Reach 1	0.03039	T=200	10.40	194.60	195.27	195.91	7.02	1.33	196.60	1.33	196.60	2.51	2.74
rio7.1	Reach 1	0.03034	T=200	10.40	193.60	194.17	194.91	8.30	1.43	195.60	1.43	195.60	3.51	3.52
rio7.1	Reach 1	0.02836	T=200	10.40	193.50	194.09	194.81	7.92	1.41	195.50	1.41	195.50	3.20	3.28
rio7.1	Reach 1	0.02638	T=200	10.40	193.40	194.02	194.71	7.58	1.38	195.40	1.38	195.40	2.93	3.07
rio7.1	Reach 1	0.02635	T=200	10.40	192.40	192.94	193.71	8.75	1.46	194.40	1.46	194.40	3.91	3.80
rio7.1	Reach 1	0.02436	T=200	10.40	192.30	192.87	193.62	8.31	1.43	194.30	1.43	194.30	3.52	3.53
rio7.1	Reach 1	0.02239	T=200	10.40	192.20	192.79	193.51	7.93	1.41	194.20	1.41	194.20	3.21	3.29
rio7.1	Reach 1	0.02235	T=200	10.40	191.60	192.15	192.91	8.62	1.45	193.60	1.45	193.60	3.79	3.73
rio7.1	Reach 1	0.01805	T=200	10.40	191.39	192.00	192.70	7.76	1.39	193.39	1.39	193.39	3.07	3.18
rio7.1	Reach 1	0.01425	T=200	10.40	191.20	191.84	192.50	7.21	1.36	193.20	1.36	193.20	2.65	2.88
rio7.1	Reach 1	0.01018	T=200	10.40	191.00	191.70	192.31	6.71	1.30	193.00	1.30	193.00	2.29	2.56
rio7.1	Reach 1	0.00607	T=200	10.40	190.80	191.55	192.12	6.32	1.26	192.81	1.25	192.80	2.04	2.34
rio7.1	Reach 1	0.00393	T=200	10.40	190.70	191.46	192.01	6.18	1.24	192.70	1.24	192.70	1.95	2.26
rio7	Reach 1	0.07652	T=200	10.40	199.26	199.80	200.48	9.46	2.58	202.38	4.20	204.00	4.56	4.91
rio7	Reach 1	0.07153	T=200	10.40	196.25	196.73	197.34	9.29	1.62	198.35	6.29	203.02	4.40	5.20
rio7	Reach 1	0.06652	T=200	10.40	194.11	194.85	195.55	8.36	3.01	197.86	6.69	201.54	3.56	3.79
rio7	Reach 1	0.06142	T=200	10.40	191.29	191.93	192.58	8.91	4.16	196.09	7.21	199.14	4.04	4.67
rio7	Reach 1	0.05642	T=200	10.40	189.00	189.44	190.10	8.57	2.56	192.00	2.56	192.00	3.75	4.31
rio7	Reach 2	0.05129	T=200	10.40	188.74	189.35	189.85	6.06	2.39	191.74	2.40	191.75	1.87	2.65
rio7	Reach 2	0.04640	T=200	10.40	188.50	189.24	189.60	4.80	2.26	191.50	2.26	191.50	1.18	1.91
rio7	Reach 2	0.03669	T=200	10.40	188.01	188.90	189.11	3.88	2.11	191.01	2.11	191.01	0.77	1.42
rio7	Reach 2	0.03095	T=200	10.40	187.52	188.69	188.89	3.69	1.57	190.26	2.31	191.00	0.69	1.41
rio7	Reach 2	0.02564	T=200	10.40	184.84	185.67	186.30	7.64	4.25	189.92	2.33	188.00	2.98	3.52
rio7	Reach 2	0.02050	T=200	10.40	183.78	184.40	185.00	7.20	4.40	188.80	1.10	185.50	2.64	3.26
rio7	Reach 2	0.01031	T=200	10.40	179.43	180.31	181.02	8.20	4.88	185.19	1.69	182.00	3.43	3.61
rio7	Reach 2	0.00496	T=200	10.40	175.61	176.18	176.88	9.61	3.95	180.13	3.82	180.00	4.71	5.18
rio7	Reach 2	0.00000	T=200	10.40	172.48	173.19	174.05	9.57	2.01	175.20	3.81	177.00	4.67	4.12

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

- **2° tratto intermedio**



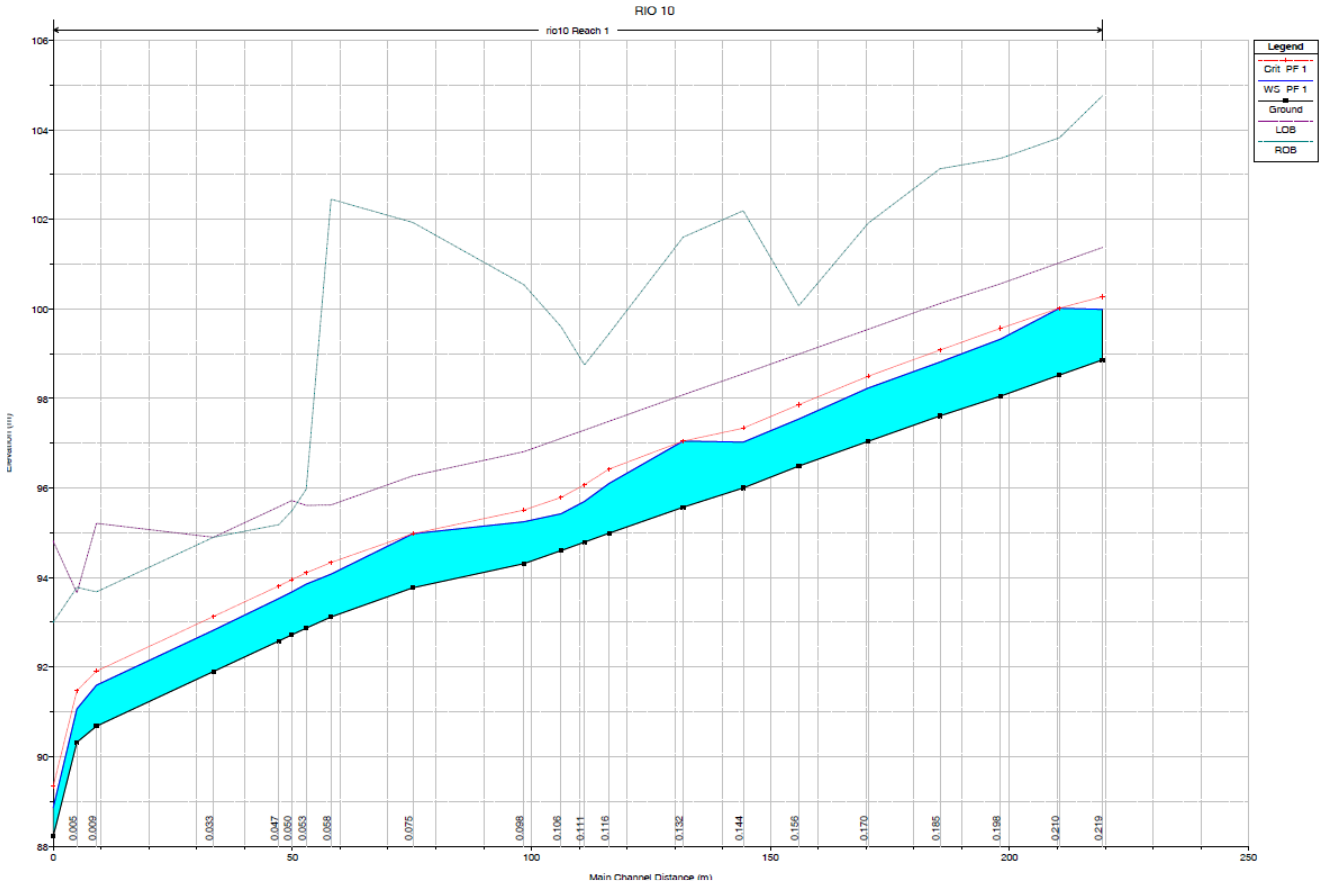
Profilo del corso d'acqua

HEC-RAS Plan: Plan 01 River: rio9 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.0228	T=200	10.40	171.37	171.76	172.44	8.96	2.60	174.36	2.60	174.36	4.10	4.59
Reach 1	0.0226	T=200	10.40	168.35	168.65	169.42	11.61	2.70	171.35	2.70	171.35	6.87	6.79
Reach 1	0.0197	T=200	10.40	168.20	168.54	169.27	10.12	2.66	171.20	2.66	171.20	5.22	5.52
Reach 1	0.0195	T=200	10.40	166.70	167.00	167.77	11.35	2.70	169.70	3.24	170.24	6.56	6.57
Reach 1	0.0149	T=200	10.40	166.46	166.84	167.53	9.30	2.62	169.46	2.63	169.47	4.41	4.87
Reach 1	0.0111	T=200	10.40	166.27	166.70	167.34	8.19	2.58	169.28	2.57	169.27	3.42	4.03
Reach 1	0.0079	T=200	10.40	166.12	166.58	167.18	7.49	2.79	169.37	2.54	169.12	2.86	3.53
Reach 1	0.0054	T=200	10.40	165.87	166.30	166.83	7.35	3.35	169.64	2.05	168.35	2.75	3.89
Reach 1	0.0000	T=200	10.40	165.36	165.75	166.19	6.77	1.92	167.67	0.65	166.40	2.33	3.99

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

- **3° tratto di valle**



Profilo del corso d'acqua

HEC-RAS Plan: Plan 01 River: rio10 Reach: Reach 1 Profile: PF 1

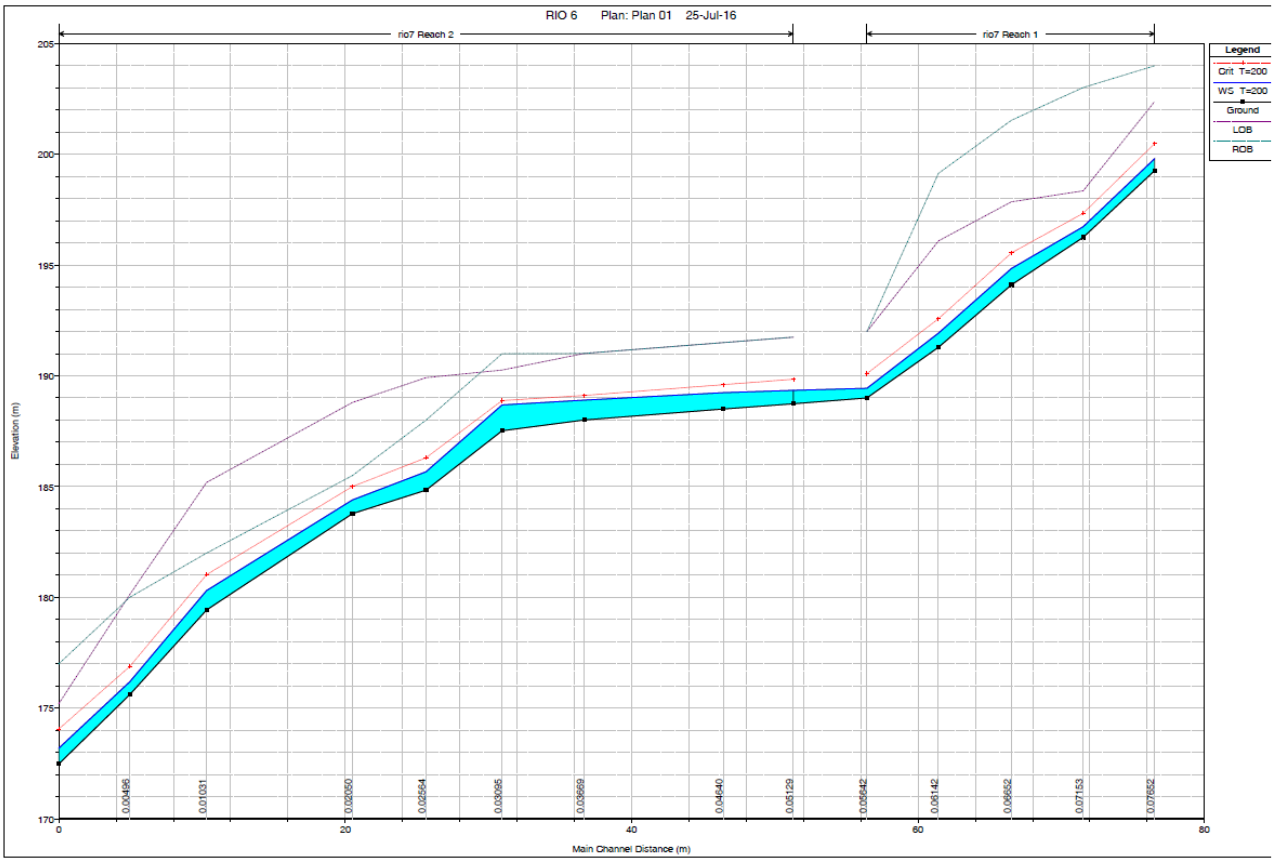
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.219	PF 1	12.88	98.86	99.99	100.27	4.40	1.38	101.37	4.77	104.76	0.99	1.47
Reach 1	0.210	PF 1	12.88	98.52	100.01	100.02	3.54	1.02	101.03	3.81	103.82	0.64	1.00
Reach 1	0.198	PF 1	12.88	98.05	99.32	99.56	4.32	1.24	100.56	4.04	103.36	0.95	1.33
Reach 1	0.185	PF 1	12.88	97.61	98.81	99.08	4.37	1.31	100.12	4.32	103.13	0.97	1.40
Reach 1	0.170	PF 1	12.88	97.04	98.23	98.50	4.37	1.31	99.54	3.68	101.91	0.97	1.40
Reach 1	0.156	PF 1	12.88	96.49	97.54	97.86	4.55	1.45	98.99	2.53	100.07	1.06	1.57
Reach 1	0.144	PF 1	12.88	96.00	97.02	97.34	4.54	1.53	98.55	5.17	102.19	1.05	1.58
Reach 1	0.132	PF 1	12.88	95.57	97.05	97.05	3.55	1.03	98.08	4.55	101.60	0.64	1.00
Reach 1	0.116	PF 1	12.88	94.99	96.10	96.42	4.59	1.39	97.49	3.35	99.45	1.08	1.53
Reach 1	0.111	PF 1	12.88	94.79	95.70	96.07	4.88	1.59	97.29	3.05	98.75	1.21	1.74
Reach 1	0.106	PF 1	12.88	94.60	95.42	95.79	4.88	1.69	97.11	4.18	99.60	1.21	1.77
Reach 1	0.098	PF 1	12.88	94.31	95.25	95.51	4.31	1.56	96.81	5.29	100.54	0.95	1.46
Reach 1	0.075	PF 1	12.88	93.77	94.98	94.98	3.38	1.29	96.27	6.95	101.93	0.58	1.00
Reach 1	0.058	PF 1	12.88	93.12	94.07	94.34	4.37	1.55	95.62	8.38	102.45	0.97	1.45
Reach 1	0.053	PF 1	12.88	92.87	93.85	94.10	4.37	1.76	95.61	2.12	95.97	0.97	1.42
Reach 1	0.050	PF 1	12.88	92.72	93.68	93.95	4.47	2.04	95.72	1.81	95.49	1.02	1.46
Reach 1	0.047	PF 1	12.88	92.58	93.53	93.81	4.51	2.05	95.58	1.65	95.18	1.04	1.48
Reach 1	0.033	PF 1	12.88	91.90	92.82	93.13	4.63	2.08	94.90	2.08	94.90	1.09	1.55
Reach 1	0.009	PF 1	12.88	90.68	91.60	91.91	4.66	3.61	95.21	2.08	93.68	1.11	1.56
Reach 1	0.005	PF 1	12.88	90.32	91.07	91.47	5.19	2.59	93.66	2.71	93.78	1.37	2.00
Reach 1	0.000	PF 1	12.88	88.22	88.86	89.34	7.43	5.95	94.81	4.14	93.00	2.82	4.21

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

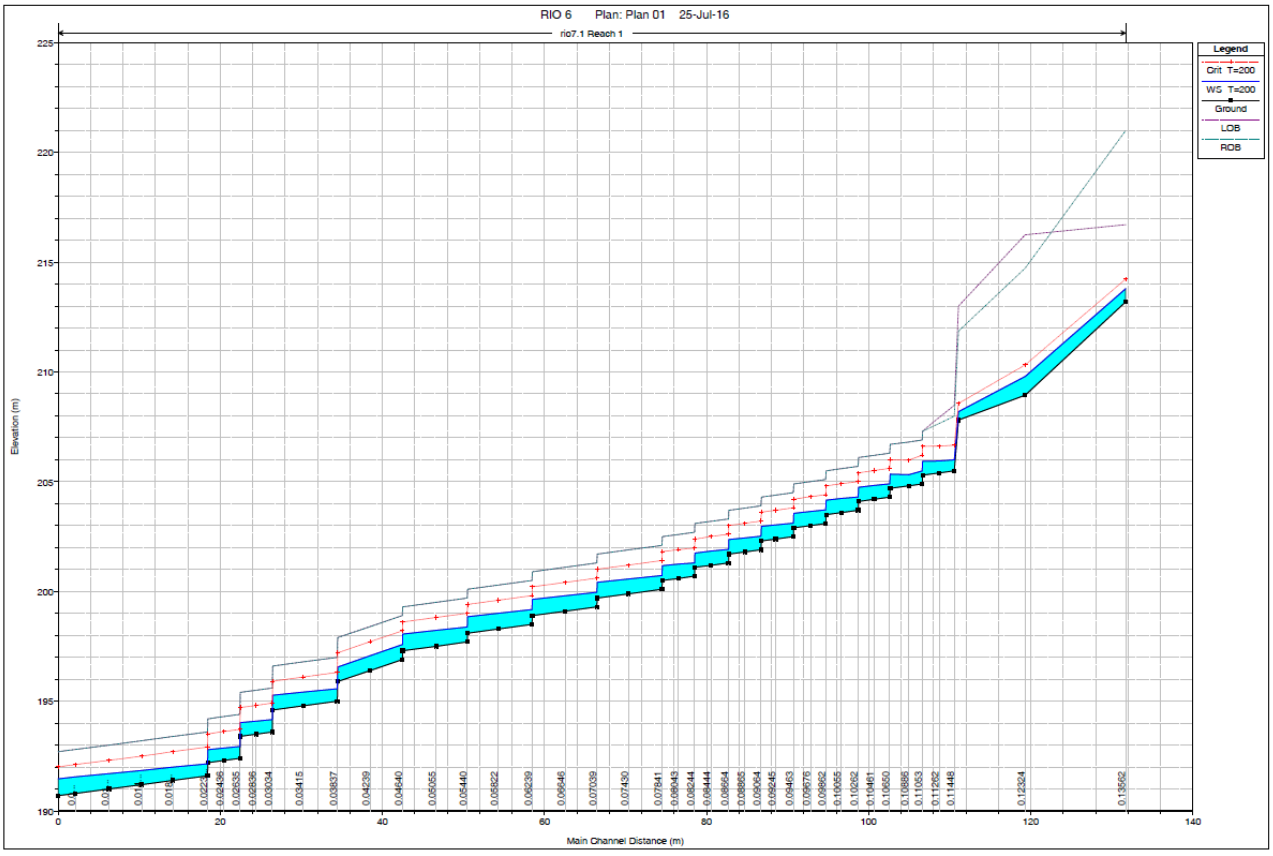
Il calcolo dei profili di rigurgito in fase progettuale per il rio 6 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza pari a 100 cm, ma non quello del carico cinetico della corrente per il quale si chiede deroga. Si fa presente che anche un'eventuale leggera inondazione non comporta nessun pericolo per la pubblica incolumità.

RIO 6 - FASE FINALE

- **1° tratto di monte**



Profilo del corso d'acqua



Profilo del corso d'acqua

HEC-RAS Plan: Plan 01 Profile: T=200

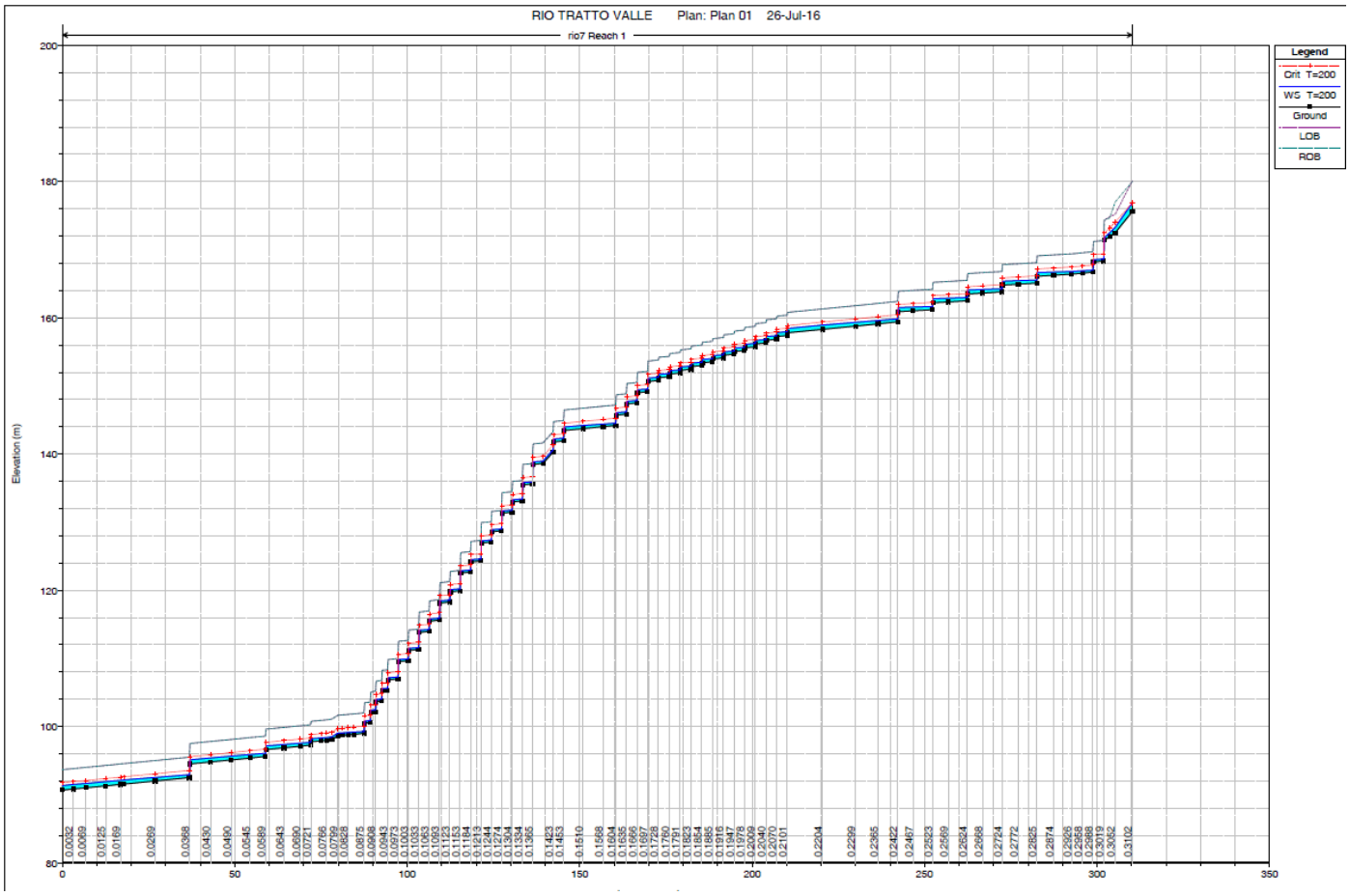
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.13562	T=200	10.40	213.19	213.80	214.23	6.37	2.91	216.71	7.20	221.00	2.07	3.53
rio7.1	Reach 1	0.12324	T=200	10.40	208.94	209.80	210.33	6.90	6.45	216.25	4.93	214.73	2.43	3.35
rio7.1	Reach 1	0.11501	T=200	10.40	207.81	208.19	208.57	5.63	4.81	213.00	3.67	211.86	1.62	3.20
rio7.1	Reach 1	0.11448	T=200	10.40	205.50	206.00	206.66	8.31	2.48	208.48	1.99	207.99	3.52	3.99
rio7.1	Reach 1	0.11262	T=200	10.40	205.40	205.95	206.62	7.92	1.98	207.93	1.70	207.65	3.20	3.57
rio7.1	Reach 1	0.11058	T=200	10.40	205.30	205.93	206.61	7.48	1.38	207.31	1.37	207.30	2.85	3.01
rio7.1	Reach 1	0.11053	T=200	10.40	204.90	205.49	206.21	7.98	1.41	206.90	1.41	206.90	3.24	3.31
rio7.1	Reach 1	0.10886	T=200	10.40	204.81	205.32	205.98	7.86	1.49	206.81	1.49	206.81	3.15	3.52
rio7.1	Reach 1	0.10657	T=200	10.40	204.70	205.34	206.00	7.28	1.36	206.70	1.36	206.70	2.70	2.90
rio7.1	Reach 1	0.10650	T=200	10.40	204.30	204.90	205.61	7.79	1.40	206.30	1.40	206.30	3.09	3.20
rio7.1	Reach 1	0.10461	T=200	10.40	204.20	204.83	205.51	7.49	1.37	206.20	1.37	206.20	2.86	3.02
rio7.1	Reach 1	0.10267	T=200	10.40	204.10	204.75	205.40	7.23	1.35	206.10	1.35	206.10	2.66	2.87
rio7.1	Reach 1	0.10262	T=200	10.40	203.70	204.31	205.01	7.74	1.39	205.70	1.39	205.70	3.06	3.18
rio7.1	Reach 1	0.10055	T=200	10.40	203.59	204.24	204.91	7.41	1.36	205.60	1.35	205.59	2.80	2.96
rio7.1	Reach 1	0.09868	T=200	10.40	203.50	204.16	204.81	7.16	1.34	205.50	1.34	205.50	2.61	2.82
rio7.1	Reach 1	0.09862	T=200	10.40	203.10	203.72	204.41	7.68	1.38	205.10	1.38	205.10	3.01	3.13
rio7.1	Reach 1	0.09676	T=200	10.40	203.00	203.65	204.32	7.39	1.35	205.00	1.36	205.01	2.79	2.96
rio7.1	Reach 1	0.09468	T=200	10.40	202.90	203.56	204.21	7.13	1.34	204.90	1.34	204.90	2.59	2.81
rio7.1	Reach 1	0.09463	T=200	10.40	202.50	203.11	203.81	7.66	1.39	204.50	1.39	204.50	2.99	3.13
rio7.1	Reach 1	0.09245	T=200	10.40	202.39	203.03	203.70	7.32	1.36	204.39	1.36	204.39	2.73	2.92
rio7.1	Reach 1	0.09068	T=200	10.40	202.30	202.97	203.61	7.09	1.33	204.30	1.33	204.30	2.56	2.78
rio7.1	Reach 1	0.09064	T=200	10.40	201.90	202.52	203.21	7.62	1.38	203.90	1.38	203.90	2.96	3.10
rio7.1	Reach 1	0.08865	T=200	10.40	201.80	202.44	203.11	7.33	1.36	203.80	1.36	203.80	2.74	2.92
rio7.1	Reach 1	0.08667	T=200	10.40	201.70	202.37	203.01	7.07	1.33	203.70	1.33	203.70	2.55	2.77
rio7.1	Reach 1	0.08664	T=200	10.40	201.30	201.92	202.61	7.61	1.38	203.30	1.38	203.30	2.95	3.09
rio7.1	Reach 1	0.08444	T=200	10.40	201.19	201.84	202.50	7.27	1.36	203.20	1.35	203.19	2.70	2.88
rio7.1	Reach 1	0.08248	T=200	10.40	201.10	201.75	202.38	7.06	1.35	203.10	1.35	203.10	2.54	2.80
rio7.1	Reach 1	0.08244	T=200	10.40	200.70	201.30	201.98	7.59	1.40	202.70	1.40	202.70	2.94	3.13
rio7.1	Reach 1	0.08043	T=200	10.40	200.59	201.25	201.90	7.26	1.34	202.59	1.35	202.60	2.69	2.88
rio7.1	Reach 1	0.07846	T=200	10.40	200.50	201.17	201.81	7.00	1.33	202.50	1.33	202.50	2.50	2.73
rio7.1	Reach 1	0.07841	T=200	10.40	200.10	200.72	201.41	7.54	1.38	202.10	1.38	202.10	2.90	3.05
rio7.1	Reach 1	0.07430	T=200	10.40	199.89	200.57	201.20	6.99	1.33	201.90	1.32	201.89	2.49	2.72
rio7.1	Reach 1	0.07043	T=200	10.40	199.70	200.42	201.01	6.58	1.28	201.70	1.28	201.70	2.21	2.49
rio7.1	Reach 1	0.07039	T=200	10.40	199.30	199.96	200.61	7.17	1.34	201.30	1.34	201.30	2.62	2.82
rio7.1	Reach 1	0.06646	T=200	10.40	199.10	199.80	200.41	6.73	1.30	201.10	1.30	201.10	2.31	2.56
rio7.1	Reach 1	0.06243	T=200	10.40	198.90	199.64	200.21	6.37	1.26	200.90	1.26	200.90	2.07	2.36
rio7.1	Reach 1	0.06239	T=200	10.40	198.50	199.18	199.81	6.99	1.32	200.50	1.32	200.50	2.49	2.72
rio7.1	Reach 1	0.05822	T=200	10.40	198.29	199.01	199.60	6.57	1.28	200.29	1.28	200.29	2.20	2.48
rio7.1	Reach 1	0.05443	T=200	10.40	198.10	198.85	199.41	6.27	1.25	200.10	1.25	200.10	2.01	2.31
rio7.1	Reach 1	0.05440	T=200	10.40	197.70	198.38	199.01	6.90	1.32	199.70	1.32	199.70	2.43	2.67
rio7.1	Reach 1	0.05055	T=200	10.40	197.50	198.23	198.82	6.52	1.27	199.50	1.28	199.51	2.17	2.45

HEC-RAS Plan: Plan 01 Profile: T=200 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.04643	T=200	10.40	197.30	198.06	198.61	6.22	1.24	199.30	1.24	199.30	1.97	2.28
rio7.1	Reach 1	0.04640	T=200	10.40	196.90	197.59	198.21	6.86	1.31	198.90	1.31	198.90	2.40	2.65
rio7.1	Reach 1	0.04239	T=200	10.40	196.39	197.07	197.71	7.03	1.34	198.41	1.32	198.39	2.52	2.74
rio7.1	Reach 1	0.03841	T=200	10.40	195.90	196.56	197.21	7.16	1.34	197.90	1.34	197.90	2.62	2.82
rio7.1	Reach 1	0.03837	T=200	10.40	195.00	195.57	196.31	8.30	1.43	197.00	1.43	197.00	3.51	3.51
rio7.1	Reach 1	0.03415	T=200	10.40	194.79	195.42	196.10	7.54	1.37	196.79	1.37	196.79	2.90	3.05
rio7.1	Reach 1	0.03039	T=200	10.40	194.60	195.27	195.91	7.02	1.33	196.60	1.33	196.60	2.51	2.74
rio7.1	Reach 1	0.03034	T=200	10.40	193.60	194.17	194.91	8.30	1.43	195.60	1.43	195.60	3.51	3.52
rio7.1	Reach 1	0.02836	T=200	10.40	193.50	194.09	194.81	7.92	1.41	195.50	1.41	195.50	3.20	3.28
rio7.1	Reach 1	0.02638	T=200	10.40	193.40	194.02	194.71	7.58	1.38	195.40	1.38	195.40	2.93	3.07
rio7.1	Reach 1	0.02635	T=200	10.40	192.40	192.94	193.71	8.75	1.46	194.40	1.46	194.40	3.91	3.80
rio7.1	Reach 1	0.02436	T=200	10.40	192.30	192.87	193.62	8.31	1.43	194.30	1.43	194.30	3.52	3.53
rio7.1	Reach 1	0.02239	T=200	10.40	192.20	192.79	193.51	7.93	1.41	194.20	1.41	194.20	3.21	3.29
rio7.1	Reach 1	0.02235	T=200	10.40	191.60	192.15	192.91	8.62	1.45	193.60	1.45	193.60	3.79	3.73
rio7.1	Reach 1	0.01805	T=200	10.40	191.39	192.00	192.70	7.76	1.39	193.39	1.39	193.39	3.07	3.18
rio7.1	Reach 1	0.01425	T=200	10.40	191.20	191.84	192.50	7.21	1.36	193.20	1.36	193.20	2.65	2.88
rio7.1	Reach 1	0.01018	T=200	10.40	191.00	191.70	192.31	6.71	1.30	193.00	1.30	193.00	2.29	2.56
rio7.1	Reach 1	0.00607	T=200	10.40	190.80	191.55	192.12	6.32	1.26	192.81	1.25	192.80	2.04	2.34
rio7.1	Reach 1	0.00393	T=200	10.40	190.70	191.46	192.01	6.18	1.24	192.70	1.24	192.70	1.95	2.26
rio7	Reach 1	0.07652	T=200	10.40	199.26	199.80	200.48	9.46	2.58	202.38	4.20	204.00	4.56	4.91
rio7	Reach 1	0.07153	T=200	10.40	196.25	196.73	197.34	9.29	1.62	198.35	6.29	203.02	4.40	5.20
rio7	Reach 1	0.06652	T=200	10.40	194.11	194.85	195.55	8.36	3.01	197.86	6.69	201.54	3.56	3.79
rio7	Reach 1	0.06142	T=200	10.40	191.29	191.93	192.58	8.91	4.16	196.09	7.21	199.14	4.04	4.67
rio7	Reach 1	0.05642	T=200	10.40	189.00	189.44	190.10	8.57	2.56	192.00	2.56	192.00	3.75	4.31
rio7	Reach 2	0.05129	T=200	10.40	188.74	189.35	189.85	6.06	2.39	191.74	2.40	191.75	1.87	2.65
rio7	Reach 2	0.04640	T=200	10.40	188.50	189.24	189.60	4.80	2.26	191.50	2.26	191.50	1.18	1.91
rio7	Reach 2	0.03669	T=200	10.40	188.01	188.90	189.11	3.88	2.11	191.01	2.11	191.01	0.77	1.42
rio7	Reach 2	0.03095	T=200	10.40	187.52	188.69	188.89	3.69	1.57	190.26	2.31	191.00	0.69	1.41
rio7	Reach 2	0.02564	T=200	10.40	184.84	185.67	186.30	7.64	4.25	189.92	2.33	188.00	2.98	3.52
rio7	Reach 2	0.02050	T=200	10.40	183.78	184.40	185.00	7.20	4.40	188.80	1.10	185.50	2.64	3.26
rio7	Reach 2	0.01031	T=200	10.40	179.43	180.31	181.02	8.20	4.88	185.19	1.69	182.00	3.43	3.61
rio7	Reach 2	0.00496	T=200	10.40	175.61	176.18	176.88	9.61	3.95	180.13	3.82	180.00	4.71	5.18
rio7	Reach 2	0.00000	T=200	10.40	172.48	173.19	174.05	9.57	2.01	175.20	3.81	177.00	4.67	4.12

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

- **2° tratto INTERMEDIO**



Profilo del corso d'acqua

HEC-RAS Plan:

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.3102	T=200	10.40	175.61	176.88	176.88	2.97	3.25	180.13	3.12	180.00	0.45	1.00
Reach 1	0.3052	T=200	10.40	172.48	173.28	174.05	8.24	1.92	175.20	3.72	177.00	3.46	3.35
Reach 1	0.3037	T=200	10.40	171.93	172.48	173.22	8.66	2.35	174.83	2.18	174.66	3.83	3.96
Reach 1	0.3021	T=200	10.40	171.37	171.76	172.44	9.07	2.60	174.36	2.60	174.36	4.19	4.67
Reach 1	0.3019	T=200	10.40	168.35	168.65	169.42	11.69	2.70	171.35	2.70	171.35	6.96	6.86
Reach 1	0.2990	T=200	10.40	168.20	168.54	169.27	10.17	2.66	171.20	2.66	171.20	5.28	5.57
Reach 1	0.2988	T=200	10.40	166.70	167.00	167.76	11.38	2.70	169.70	2.70	169.70	6.61	6.60
Reach 1	0.2958	T=200	10.40	166.55	166.90	167.61	9.91	2.65	169.55	2.65	169.55	5.01	5.36
Reach 1	0.2926	T=200	10.40	166.40	166.79	167.46	8.79	2.61	169.40	2.61	169.40	3.94	4.48
Reach 1	0.2874	T=200	10.40	166.24	166.72	167.32	7.38	2.52	169.24	2.53	169.25	2.78	3.44
Reach 1	0.2827	T=200	10.40	166.10	166.63	167.17	6.50	2.47	169.10	2.47	169.10	2.16	2.85
Reach 1	0.2825	T=200	10.40	165.10	165.54	166.16	7.84	2.56	168.10	2.56	168.10	3.13	3.77
Reach 1	0.2772	T=200	10.40	164.94	165.46	166.00	6.71	2.48	167.94	2.48	167.94	2.30	2.99
Reach 1	0.2726	T=200	10.40	164.80	165.37	165.86	6.03	2.43	167.80	2.43	167.80	1.86	2.55
Reach 1	0.2724	T=200	10.40	163.80	164.26	164.86	7.48	2.54	166.80	2.54	166.80	2.85	3.52
Reach 1	0.2668	T=200	10.40	163.63	164.17	164.69	6.44	2.46	166.63	2.46	166.63	2.11	2.81
Reach 1	0.2625	T=200	10.40	163.50	164.09	164.56	5.85	2.41	166.50	2.41	166.50	1.75	2.44
Reach 1	0.2624	T=200	10.40	162.50	162.97	163.57	7.34	2.53	165.50	2.53	165.50	2.75	3.42
Reach 1	0.2569	T=200	10.40	162.33	162.88	163.40	6.36	2.46	165.34	2.45	165.33	2.06	2.75
Reach 1	0.2524	T=200	10.40	162.20	162.80	163.27	5.79	2.40	165.20	2.40	165.20	1.71	2.39
Reach 1	0.2523	T=200	10.40	161.20	161.67	162.26	7.30	2.53	164.20	2.53	164.20	2.72	3.39
Reach 1	0.2467	T=200	10.40	161.03	161.58	162.10	6.31	2.46	164.04	2.45	164.03	2.03	2.71
Reach 1	0.2424	T=200	10.40	160.90	161.50	161.97	5.77	2.40	163.90	2.40	163.90	1.70	2.39
Reach 1	0.2422	T=200	10.40	159.40	159.84	160.46	7.92	2.56	162.40	2.56	162.40	3.20	3.83
Reach 1	0.2365	T=200	10.40	159.11	159.62	160.18	6.91	2.49	162.11	2.50	162.12	2.43	3.12
Reach 1	0.2299	T=200	10.40	158.78	159.34	159.85	6.19	2.44	161.78	2.44	161.78	1.96	2.65
Reach 1	0.2204	T=200	10.40	158.30	158.92	159.37	5.63	2.38	161.30	2.39	161.31	1.62	2.30
Reach 1	0.2103	T=200	10.40	157.80	158.44	158.87	5.42	2.36	160.80	2.36	160.80	1.50	2.17
Reach 1	0.2101	T=200	10.40	157.40	157.97	158.47	6.13	2.44	160.40	2.44	160.40	1.92	2.61
Reach 1	0.2072	T=200	10.40	157.25	157.83	158.31	5.94	2.42	160.25	2.42	160.25	1.80	2.49
Reach 1	0.2070	T=200	10.40	156.85	157.38	157.91	6.57	2.47	159.85	2.47	159.85	2.20	2.90
Reach 1	0.2041	T=200	10.40	156.70	157.25	157.76	6.29	2.45	159.70	2.45	159.70	2.02	2.72
Reach 1	0.2040	T=200	10.40	156.30	156.80	157.36	6.87	2.50	159.30	2.50	159.30	2.41	3.10
Reach 1	0.2010	T=200	10.40	156.15	156.68	157.21	6.52	2.47	159.15	2.47	159.15	2.16	2.86
Reach 1	0.2009	T=200	10.40	155.75	156.24	156.81	7.07	2.51	158.75	2.51	158.75	2.55	3.24
Reach 1	0.1980	T=200	10.40	155.60	156.12	156.66	6.68	2.48	158.60	2.48	158.60	2.27	2.97
Reach 1	0.1978	T=200	10.40	155.20	155.68	156.27	7.21	2.52	158.20	2.52	158.20	2.65	3.33
Reach 1	0.1949	T=200	10.40	155.05	155.56	156.11	6.79	2.49	158.05	2.49	158.05	2.35	3.05

HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.1947	T=200	10.40	154.65	155.12	155.71	7.32	2.53	157.65	2.53	157.65	2.73	3.41
Reach 1	0.1918	T=200	10.40	154.50	155.00	155.56	6.87	2.50	157.50	2.50	157.50	2.41	3.10
Reach 1	0.1916	T=200	10.40	154.10	154.57	155.17	7.39	2.53	157.10	2.53	157.10	2.78	3.45
Reach 1	0.1887	T=200	10.40	153.95	154.45	155.02	6.91	2.50	156.95	2.50	156.95	2.44	3.12
Reach 1	0.1885	T=200	10.40	153.55	154.02	154.62	7.43	2.53	156.55	2.53	156.55	2.81	3.48
Reach 1	0.1856	T=200	10.40	153.40	153.90	154.46	6.96	2.50	156.40	2.50	156.40	2.47	3.16
Reach 1	0.1854	T=200	10.40	153.00	153.46	154.06	7.47	2.54	156.00	2.54	156.00	2.85	3.51
Reach 1	0.1824	T=200	10.40	152.85	153.35	153.91	6.97	2.50	155.85	2.50	155.85	2.47	3.16
Reach 1	0.1823	T=200	10.40	152.45	152.91	153.51	7.48	2.54	155.45	2.54	155.45	2.85	3.52
Reach 1	0.1792	T=200	10.40	152.30	152.80	153.36	6.97	2.50	155.30	2.50	155.30	2.48	3.16
Reach 1	0.1791	T=200	10.40	151.90	152.36	152.96	7.48	2.54	154.90	2.54	154.90	2.85	3.52
Reach 1	0.1762	T=200	10.40	151.75	152.24	152.81	6.99	2.51	154.75	2.51	154.75	2.49	3.18
Reach 1	0.1760	T=200	10.40	151.35	151.81	152.42	7.50	2.54	154.35	2.54	154.35	2.87	3.53
Reach 1	0.1729	T=200	10.40	151.20	151.70	152.26	6.97	2.50	154.20	2.50	154.20	2.48	3.17
Reach 1	0.1728	T=200	10.40	150.80	151.26	151.86	7.48	2.54	153.80	2.54	153.80	2.85	3.52
Reach 1	0.1698	T=200	10.40	150.65	151.14	151.71	6.99	2.51	153.65	2.51	153.65	2.49	3.18
Reach 1	0.1697	T=200	10.40	149.15	149.54	150.21	8.77	2.61	152.15	2.61	152.15	3.92	4.47
Reach 1	0.1668	T=200	10.40	149.00	149.43	150.06	8.01	2.57	152.00	2.57	152.00	3.27	3.90
Reach 1	0.1666	T=200	10.40	147.50	147.86	148.56	9.56	2.64	150.50	2.64	150.50	4.66	5.08
Reach 1	0.1637	T=200	10.40	147.35	147.75	148.41	8.61	2.60	150.35	2.60	150.35	3.78	4.34
Reach 1	0.1635	T=200	10.40	145.85	146.19	146.91	10.05	2.66	148.85	2.66	148.85	5.15	5.48
Reach 1	0.1606	T=200	10.40	145.70	146.08	146.76	8.98	2.62	148.70	2.62	148.70	4.11	4.63
Reach 1	0.1604	T=200	10.40	144.20	144.53	145.26	10.36	2.67	147.20	2.67	147.20	5.47	5.73
Reach 1	0.1568	T=200	10.40	144.02	144.41	145.09	8.98	2.61	147.02	2.62	147.03	4.11	4.62
Reach 1	0.1510	T=200	10.40	143.73	144.20	144.80	7.54	2.54	146.74	2.53	146.73	2.90	3.55
Reach 1	0.1455	T=200	10.40	143.45	143.97	144.52	6.71	2.48	146.45	2.48	146.45	2.29	2.98
Reach 1	0.1453	T=200	10.40	141.92	142.32	142.99	8.59	2.60	144.92	2.60	144.92	3.76	4.33
Reach 1	0.1425	T=200	10.40	141.77	142.21	142.84	7.89	2.56	144.77	2.56	144.77	3.17	3.81
Reach 1	0.1423	T=200	10.40	140.27	140.63	141.33	9.47	2.64	143.27	2.64	143.27	4.57	5.01
Reach 1	0.1393	T=200	10.40	138.62	138.96	139.69	10.14	2.66	141.62	2.66	141.62	5.24	5.54
Reach 1	0.1365	T=200	10.40	138.47	138.85	139.54	9.06	2.62	141.47	2.62	141.47	4.19	4.69
Reach 1	0.1363	T=200	10.40	135.62	135.92	136.69	11.55	2.70	138.62	2.70	138.62	6.80	6.74
Reach 1	0.1335	T=200	10.40	135.47	135.81	136.54	10.15	2.66	138.47	2.66	138.47	5.25	5.56
Reach 1	0.1334	T=200	10.40	133.12	133.41	134.19	12.03	2.71	136.12	2.71	136.12	7.37	7.17
Reach 1	0.1305	T=200	10.40	132.97	133.30	134.04	10.47	2.67	135.97	2.67	135.97	5.59	5.82
Reach 1	0.1304	T=200	10.40	131.47	131.77	132.53	11.65	2.70	134.47	2.70	134.47	6.92	6.84
Reach 1	0.1275	T=200	10.40	131.32	131.66	132.38	10.19	2.66	134.32	2.66	134.32	5.29	5.59
Reach 1	0.1274	T=200	10.40	128.72	129.00	129.78	12.24	2.72	131.72	2.72	131.72	7.64	7.36

HEC-RAS Plan: (Continued)

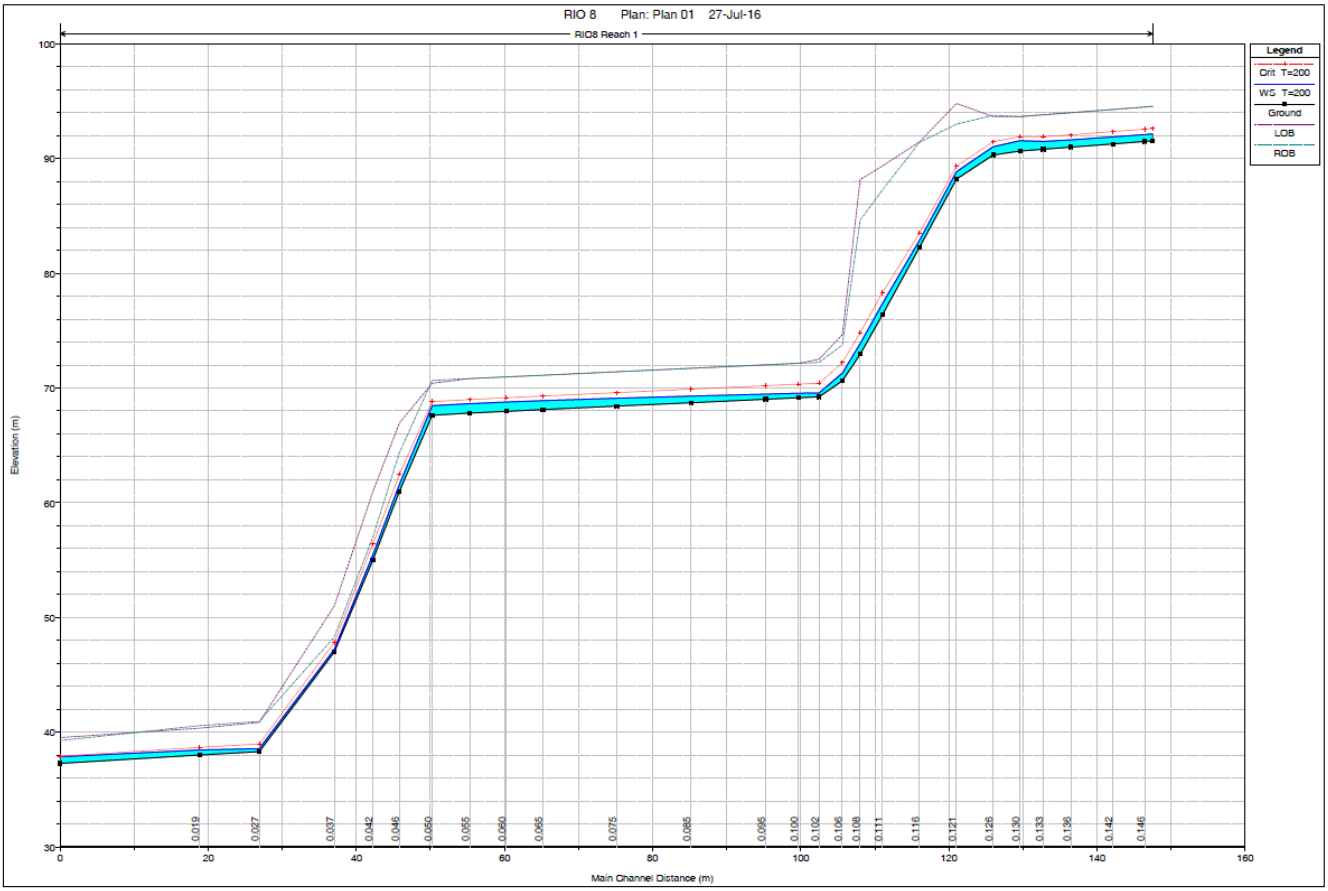
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.1245	T=200	10.40	128.57	128.90	129.63	10.62	2.67	131.57	2.67	131.57	5.75	5.95
Reach 1	0.1244	T=200	10.40	127.07	127.36	128.13	11.78	2.71	130.07	2.71	130.07	7.07	6.95
Reach 1	0.1215	T=200	10.40	126.92	127.26	127.98	10.28	2.66	129.92	2.66	129.92	5.39	5.67
Reach 1	0.1213	T=200	10.40	124.32	124.60	125.38	12.32	2.72	127.32	2.72	127.32	7.74	7.43
Reach 1	0.1185	T=200	10.40	124.17	124.49	125.23	10.68	2.68	127.17	2.68	127.17	5.81	6.00
Reach 1	0.1184	T=200	10.40	122.67	122.96	123.73	11.83	2.71	125.67	2.71	125.67	7.14	7.00
Reach 1	0.1155	T=200	10.40	122.52	122.86	123.58	10.31	2.66	125.52	2.66	125.52	5.42	5.69
Reach 1	0.1153	T=200	10.40	119.92	120.20	120.98	12.34	2.72	122.92	2.72	122.92	7.76	7.45
Reach 1	0.1125	T=200	10.40	119.77	120.09	120.83	10.69	2.68	122.77	2.68	122.77	5.82	6.01
Reach 1	0.1123	T=200	10.40	118.27	118.56	119.33	11.84	2.71	121.27	2.71	121.27	7.15	7.00
Reach 1	0.1095	T=200	10.40	118.12	118.46	119.19	10.34	2.66	121.12	2.66	121.12	5.45	5.71
Reach 1	0.1093	T=200	10.40	115.62	115.90	116.69	12.29	2.72	118.62	2.72	118.62	7.70	7.40
Reach 1	0.1065	T=200	10.40	115.45	115.77	116.52	10.68	2.68	118.45	2.68	118.45	5.81	5.99
Reach 1	0.1063	T=200	10.40	113.95	114.24	115.02	11.83	2.71	116.95	2.71	116.95	7.14	6.99
Reach 1	0.1035	T=200	10.40	113.80	114.14	114.87	10.33	2.66	116.80	2.66	116.80	5.44	5.70
Reach 1	0.1033	T=200	10.40	111.30	111.58	112.37	12.28	2.72	114.30	2.72	114.30	7.69	7.40
Reach 1	0.1005	T=200	10.40	111.15	111.47	112.22	10.65	2.68	114.15	2.68	114.15	5.78	5.98
Reach 1	0.1003	T=200	10.40	109.65	109.94	110.72	11.81	2.71	112.65	2.71	112.65	7.11	6.98
Reach 1	0.0975	T=200	10.40	109.50	109.84	110.56	10.31	2.66	112.50	2.66	112.50	5.42	5.69
Reach 1	0.0973	T=200	10.40	106.98	107.26	108.04	12.28	2.72	109.98	2.72	109.98	7.69	7.40
Reach 1	0.0945	T=200	10.40	106.83	107.15	107.89	10.65	2.68	109.83	2.68	109.83	5.78	5.97
Reach 1	0.0943	T=200	10.40	105.33	105.62	106.39	11.80	2.71	108.33	2.71	108.33	7.10	6.97
Reach 1	0.0927	T=200	10.40	105.25	105.57	106.32	10.91	2.68	108.25	2.68	108.25	6.06	6.18
Reach 1	0.0926	T=200	10.40	103.75	104.04	104.82	12.03	2.71	106.75	2.71	106.75	7.38	7.16
Reach 1	0.0910	T=200	10.40	103.66	103.97	104.72	11.08	2.69	106.66	2.69	106.66	6.26	6.35
Reach 1	0.0908	T=200	10.40	102.16	102.44	103.22	12.19	2.72	105.16	2.72	105.16	7.58	7.32
Reach 1	0.0894	T=200	10.40	102.08	102.39	103.15	11.34	2.69	105.08	2.69	105.08	6.55	6.55
Reach 1	0.0893	T=200	10.40	100.58	100.86	101.65	12.42	2.72	103.58	2.72	103.58	7.86	7.51
Reach 1	0.0876	T=200	10.40	100.50	100.80	101.57	11.38	2.70	103.50	2.70	103.50	6.61	6.59
Reach 1	0.0875	T=200	10.40	99.00	99.28	100.07	12.45	2.72	102.00	2.72	102.00	7.91	7.54
Reach 1	0.0845	T=200	10.40	98.85	99.17	99.92	10.72	2.68	101.85	2.68	101.85	5.85	6.02
Reach 1	0.0828	T=200	10.40	98.77	99.13	99.85	9.92	2.65	101.78	2.64	101.77	5.02	5.34
Reach 1	0.0812	T=200	10.40	98.70	99.07	99.77	9.31	2.63	101.70	2.63	101.70	4.42	4.87
Reach 1	0.0799	T=200	10.40	98.63	99.03	99.71	8.85	2.61	101.64	2.60	101.63	4.00	4.50
Reach 1	0.0781	T=200	10.40	98.05	98.47	99.15	9.01	2.62	101.09	2.60	101.07	4.14	4.64
Reach 1	0.0766	T=200	10.40	97.97	98.39	99.06	8.58	2.58	100.97	2.58	100.97	3.75	4.25
Reach 1	0.0751	T=200	10.40	97.90	98.32	98.96	8.19	2.58	100.90	2.58	100.90	3.42	4.04
Reach 1	0.0721	T=200	10.40	97.75	98.21	98.82	7.55	2.54	100.75	2.54	100.75	2.91	3.56

HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.0720	T=200	10.40	97.25	97.68	98.32	8.13	2.57	100.25	2.57	100.25	3.37	3.98
Reach 1	0.0690	T=200	10.40	97.10	97.56	98.16	7.49	2.54	100.10	2.54	100.10	2.86	3.53
Reach 1	0.0643	T=200	10.40	96.86	97.38	97.93	6.75	2.49	99.87	2.48	99.86	2.32	3.01
Reach 1	0.0591	T=200	10.40	96.60	97.16	97.67	6.21	2.44	99.60	2.44	99.60	1.97	2.66
Reach 1	0.0589	T=200	10.40	95.60	96.05	96.66	7.61	2.55	98.60	2.55	98.60	2.95	3.61
Reach 1	0.0545	T=200	10.40	95.37	95.88	96.44	6.87	2.50	98.38	2.49	98.37	2.41	3.09
Reach 1	0.0490	T=200	10.40	95.10	95.65	96.17	6.26	2.45	98.10	2.45	98.10	2.00	2.70
Reach 1	0.0430	T=200	10.40	94.80	95.39	95.86	5.84	2.41	97.80	2.41	97.80	1.74	2.43
Reach 1	0.0370	T=200	10.40	94.50	95.12	95.56	5.60	2.38	97.50	2.38	97.50	1.60	2.28
Reach 1	0.0368	T=200	10.40	92.50	92.91	93.57	8.39	2.59	95.50	2.59	95.50	3.59	4.17
Reach 1	0.0269	T=200	10.40	92.00	92.52	93.06	6.63	2.48	95.00	2.48	95.00	2.24	2.94
Reach 1	0.0179	T=200	10.40	91.54	92.16	92.63	5.85	2.41	94.57	2.38	94.54	1.74	2.41
Reach 1	0.0169	T=200	10.40	91.50	92.09	92.57	5.84	2.41	94.50	2.41	94.50	1.74	2.43
Reach 1	0.0125	T=200	10.40	91.28	91.90	92.35	5.65	2.38	94.28	2.38	94.28	1.63	2.30
Reach 1	0.0069	T=200	10.40	91.00	91.63	92.07	5.50	2.37	94.00	2.37	94.00	1.54	2.22
Reach 1	0.0032	T=200	10.40	90.81	91.50	91.92	5.33	2.33	93.83	2.31	93.81	1.45	2.06
Reach 1	0.0000	T=200	10.40	90.66	91.32	91.74	5.37	2.34	93.66	2.34	93.66	1.47	2.12

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

- **3° tratto VALLE**



Profilo del corso d'acqua

HEC-RAS Plan:

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.148	T=200	10.40	91.54	92.16	92.63	5.83	2.41	94.57	2.38	94.54	1.73	2.40
Reach 1	0.146	T=200	10.40	91.50	92.09	92.57	5.82	2.41	94.50	2.41	94.50	1.73	2.41
Reach 1	0.142	T=200	10.40	91.28	91.90	92.35	5.63	2.38	94.28	2.38	94.28	1.62	2.29
Reach 1	0.136	T=200	10.40	91.00	91.63	92.07	5.49	2.37	94.00	2.37	94.00	1.54	2.21
Reach 1	0.133	T=200	10.40	90.81	91.50	91.92	5.31	2.33	93.83	2.31	93.81	1.44	2.06
Reach 1	0.130	T=200	12.88	90.66	91.56	91.91	4.82	2.10	93.66	2.10	93.66	1.19	1.62
Reach 1	0.126	T=200	12.88	90.32	91.04	91.48	5.40	2.62	93.66	2.74	93.78	1.49	2.12
Reach 1	0.121	T=200	12.88	88.22	88.87	89.34	7.14	5.94	94.81	4.13	93.00	2.60	4.00
Reach 1	0.116	T=200	12.88	82.28	82.89	83.53	10.39	8.57	91.46	8.53	91.42	5.51	6.03
Reach 1	0.111	T=200	12.88	76.38	77.35	78.30	11.52	12.01	89.36	9.93	87.28	6.77	5.14
Reach 1	0.108	T=200	12.88	72.95	73.87	74.82	12.23	14.30	88.17	10.76	84.63	7.63	5.72
Reach 1	0.106	T=200	12.88	70.63	71.30	72.20	12.37	3.35	74.65	2.45	73.75	7.81	6.31
Reach 1	0.102	T=200	12.88	69.23	69.57	70.41	11.88	2.94	72.51	2.66	72.23	7.20	6.54
Reach 1	0.100	T=200	12.88	69.15	69.54	70.34	10.55	2.62	72.16	2.61	72.15	5.68	5.43
Reach 1	0.095	T=200	12.88	69.02	69.47	70.20	9.02	2.55	72.02	2.55	72.02	4.15	4.31
Reach 1	0.085	T=200	12.88	68.72	69.30	69.90	6.95	2.42	71.72	2.42	71.72	2.46	2.92
Reach 1	0.075	T=200	12.88	68.42	69.11	69.60	5.80	2.31	71.42	2.31	71.42	1.72	2.23
Reach 1	0.065	T=200	12.88	68.12	68.90	69.30	5.17	2.22	71.12	2.22	71.12	1.36	1.87
Reach 1	0.060	T=200	12.88	67.97	68.78	69.15	4.99	2.19	70.97	2.19	70.97	1.27	1.78
Reach 1	0.055	T=200	12.88	67.82	68.64	69.00	4.89	2.18	70.82	2.18	70.82	1.22	1.73
Reach 1	0.050	T=200	12.88	67.62	68.47	68.83	4.89	1.94	70.41	2.20	70.67	1.22	1.73
Reach 1	0.046	T=200	12.88	61.00	61.60	62.50	11.80	5.35	66.95	2.77	64.37	7.09	5.68
Reach 1	0.042	T=200	12.88	55.00	55.46	56.38	13.50	5.49	60.95	1.54	57.00	9.29	7.12
Reach 1	0.037	T=200	12.88	47.00	47.22	47.83	12.73	3.78	51.00	1.08	48.30	8.27	9.22
Reach 1	0.027	T=200	12.88	38.30	38.56	38.98	7.60	2.30	40.86	2.38	40.94	2.95	5.29
Reach 1	0.019	T=200	12.88	38.01	38.44	38.67	3.81	1.91	40.35	2.13	40.57	0.74	2.05
Reach 1	0.000	T=200	12.88	37.28	37.86	37.91	2.42	1.67	39.53	1.40	39.26	0.30	1.17

Tabella risultati verifiche eseguite con il programma Hec-Ras per lo stato di progetto

Il calcolo dei profili di rigurgito in fase progettuale per il rio 6 evidenzia che, nelle sezioni e nel profilo allegati, l'alveo di progetto conferisce un adeguato livello di sicurezza. La piena del corso d'acqua rimane sempre confinata all'interno dell'alveo rispettando il franco di sicurezza pari a 100 cm, ma non quello del carico cinetico della corrente per il quale si chiede deroga.
Si fa presente che anche un'eventuale leggera inondazione non comporta nessun pericolo per la pubblica incolumità.

CONCLUSIONI

Si può quindi concludere che, sulla base degli accertamenti svolti e dall'esame delle verifiche idrauliche, la realizzazione delle nuove opere in progetto conferiscono un adeguato livello di sicurezza al deflusso dei vari rii, le opere non risultano in contrasto con le previsioni del Piano di Bacino del Roia; risulta quindi manifesta la non criticità dell'area di intervento conformemente alla normativa di Piano di Bacino.

DICHIARAZIONE IN MERITO ALLA NON CRITICITA'

In base all'esame eseguito non risultano peculiarità idrauliche significative al di fuori del tratto di torrente analizzato tali da modificare il regime idraulico della zona verificata. PERTANTO SI CONCLUDE CHE L'OPERA IN OGGETTO RISULTA AMMISSIBILE DAL PUNTO DI VISTA IDRAULICO.

Andora, ottobre 2018

I tecnici
Ing. MAURO MARCHIANO
Geol. Vittorio Vezzaro

VERIFICA IDRAULICA

RIO 1

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

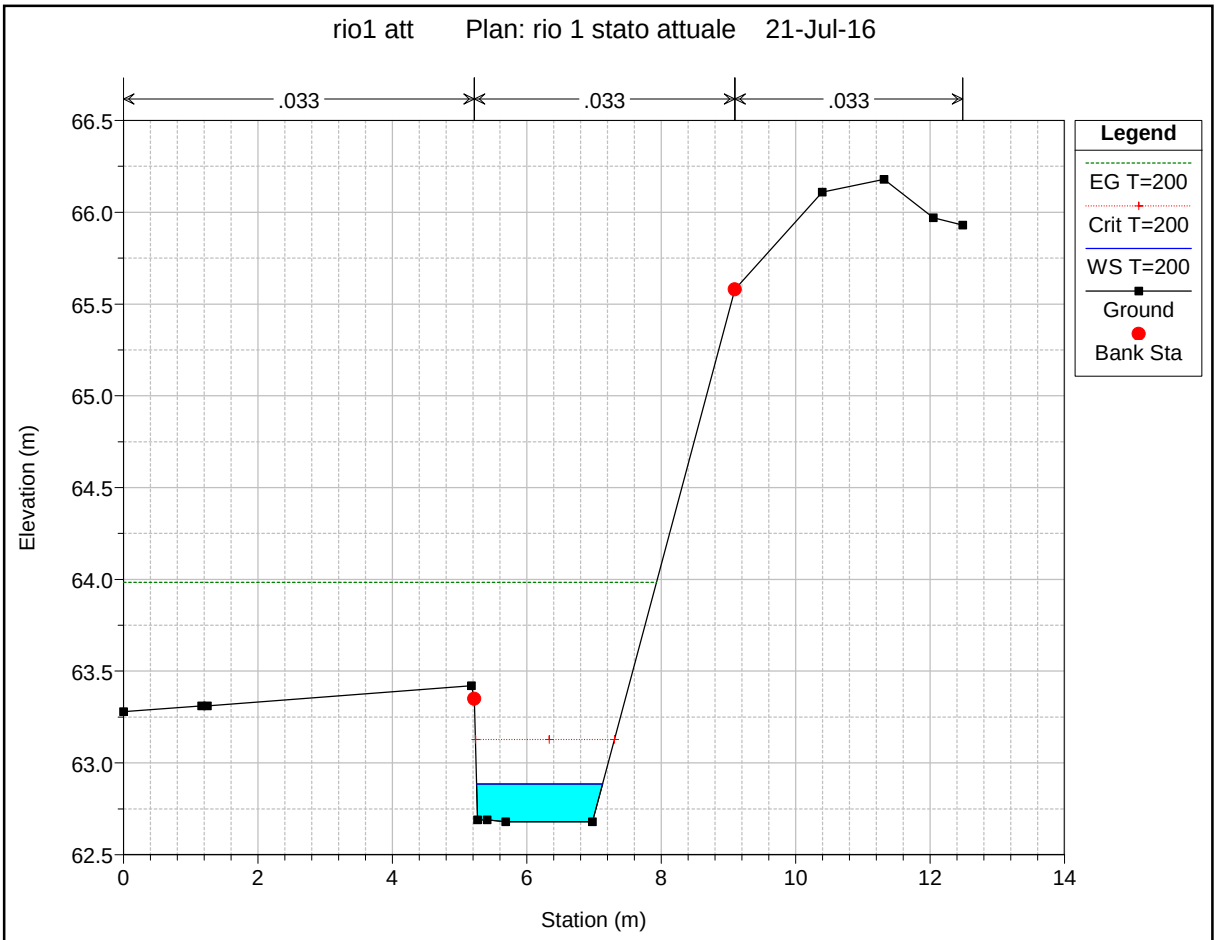
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

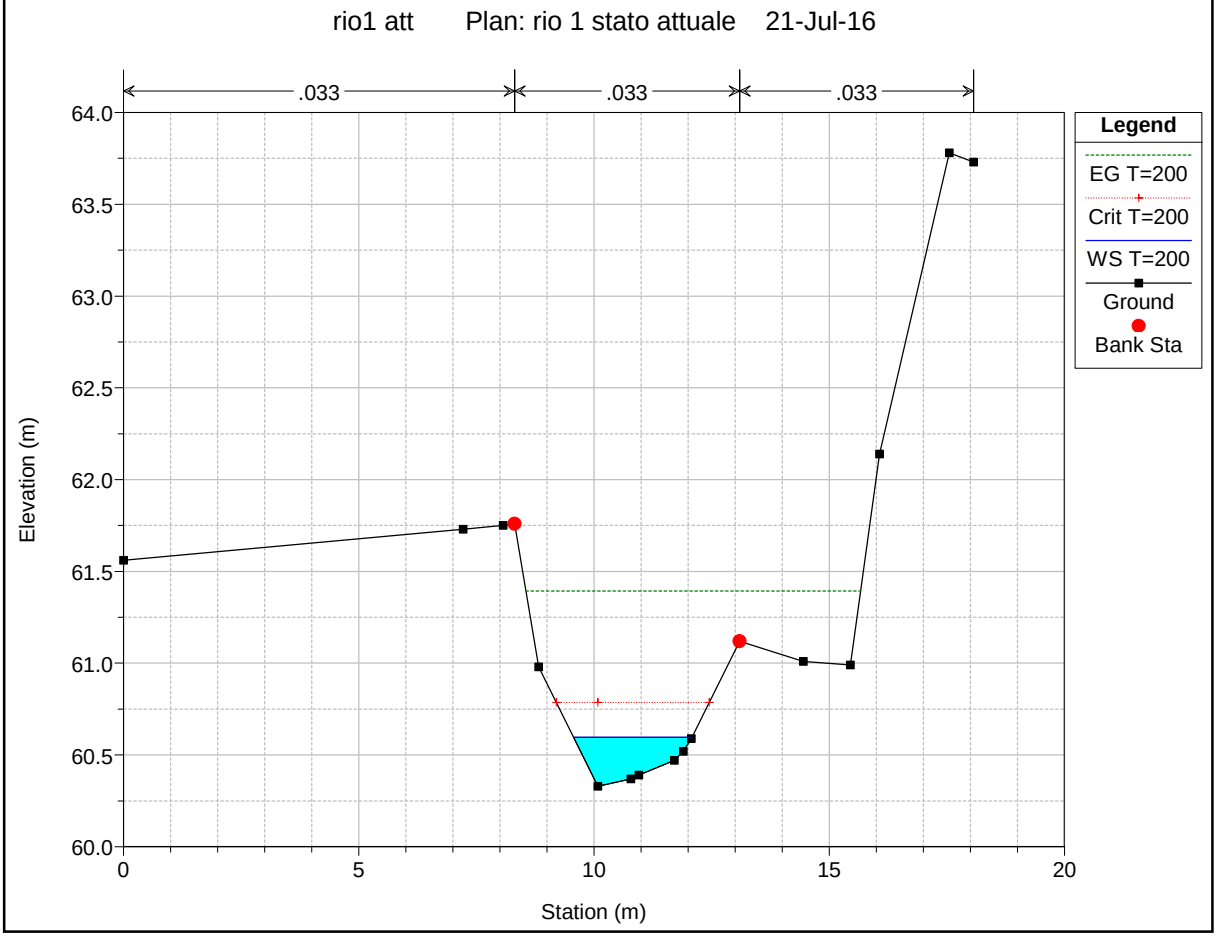
Vel Chnl = Velocità della corrente nel canale.

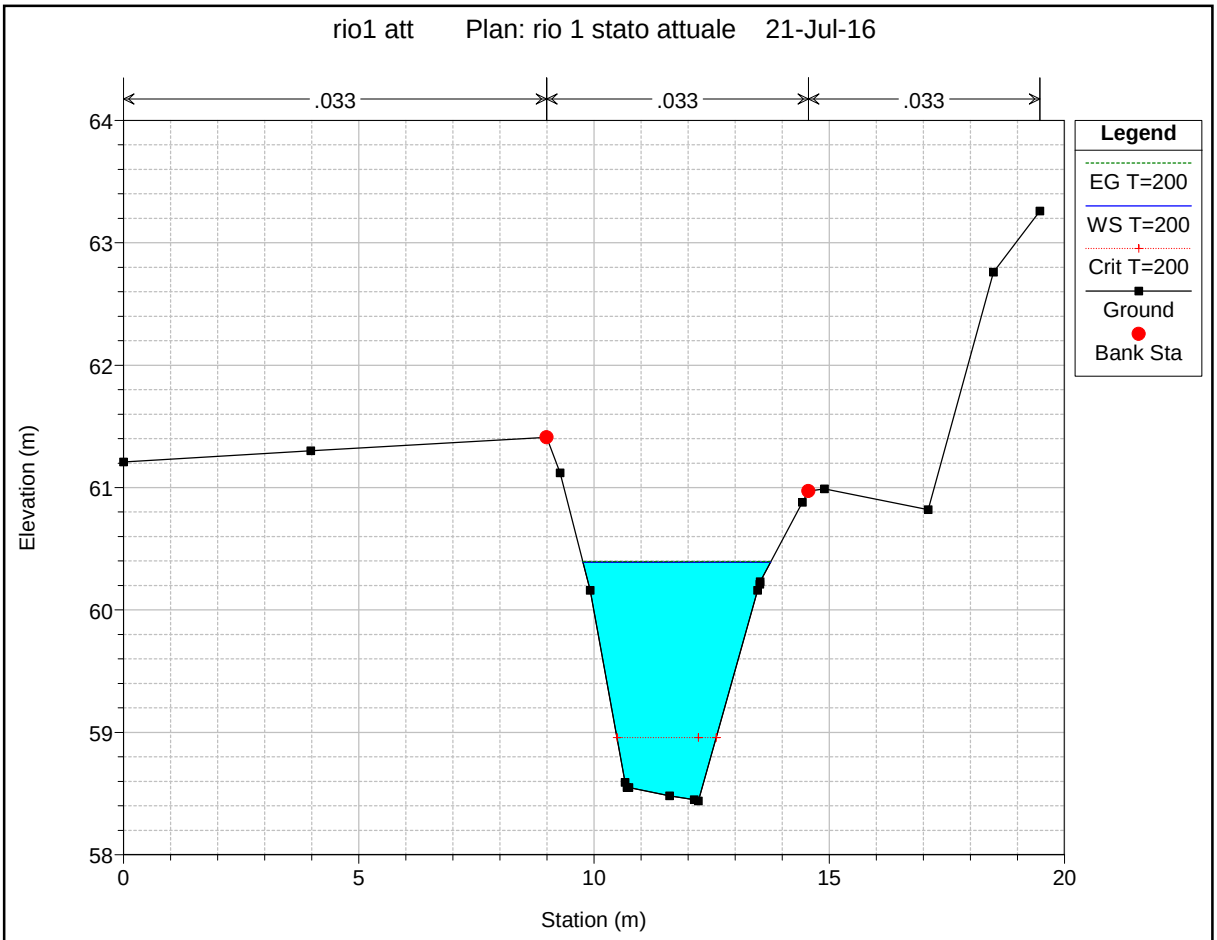
Froude = n° di froude della corrente.

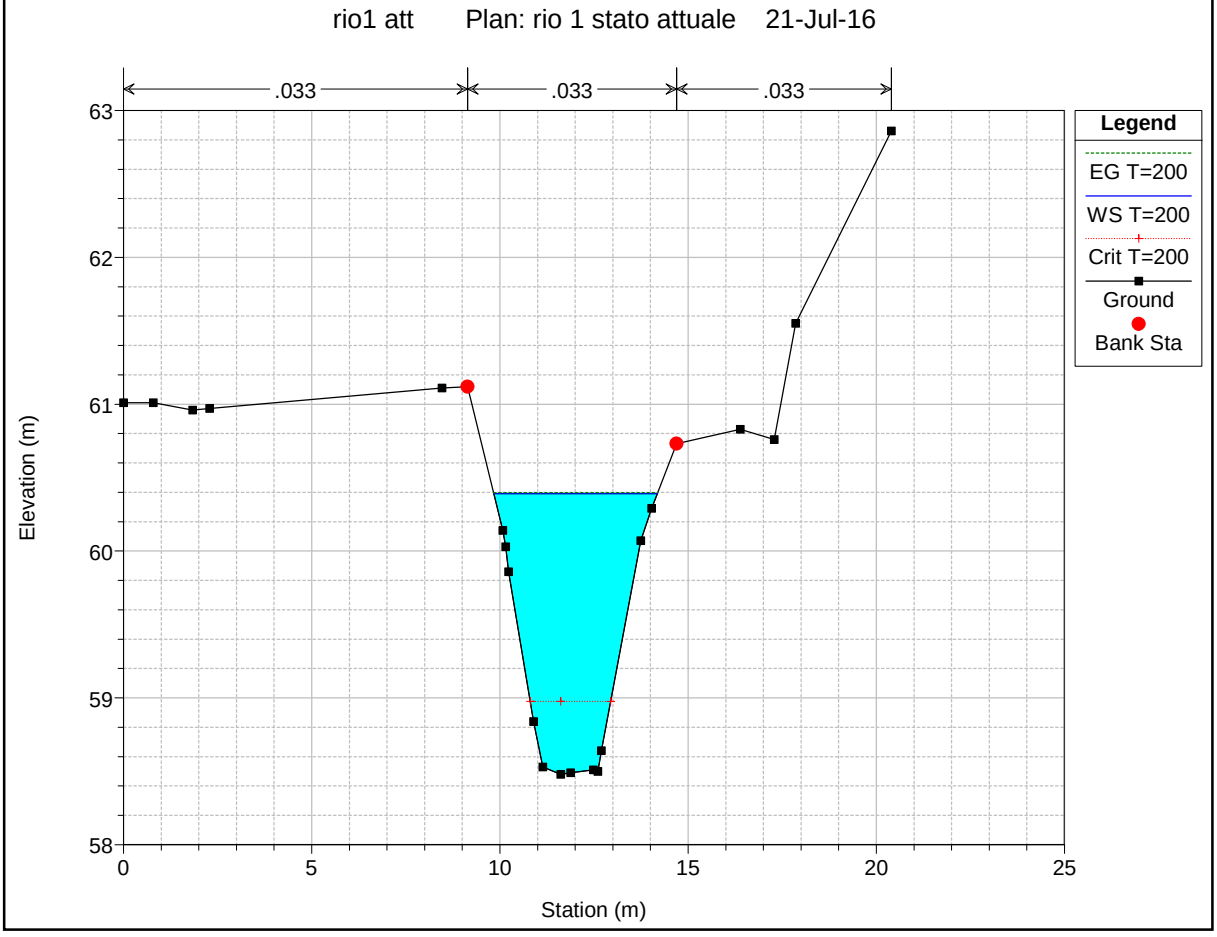
Vel. Head = $U^2/2g$.

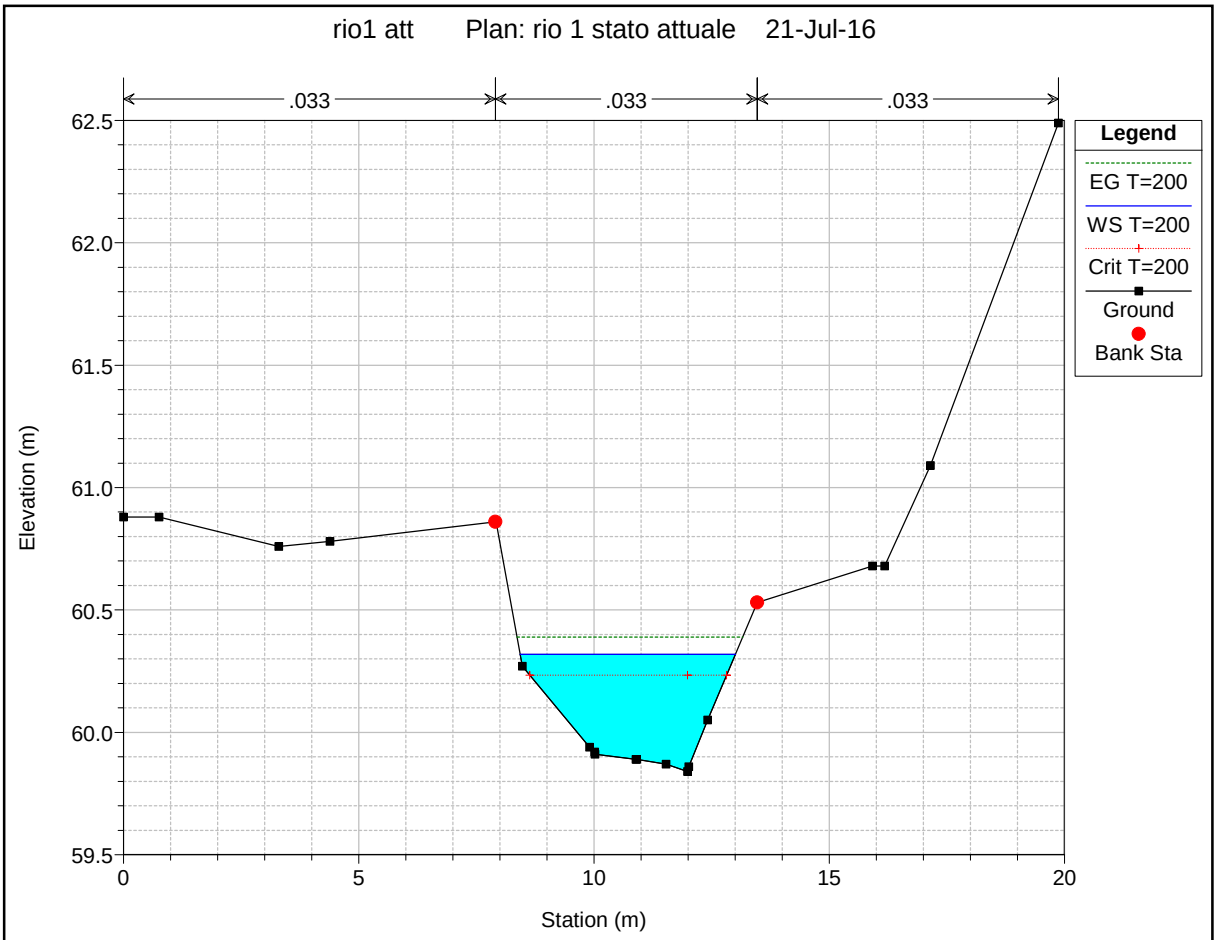
STATO ATTUALE

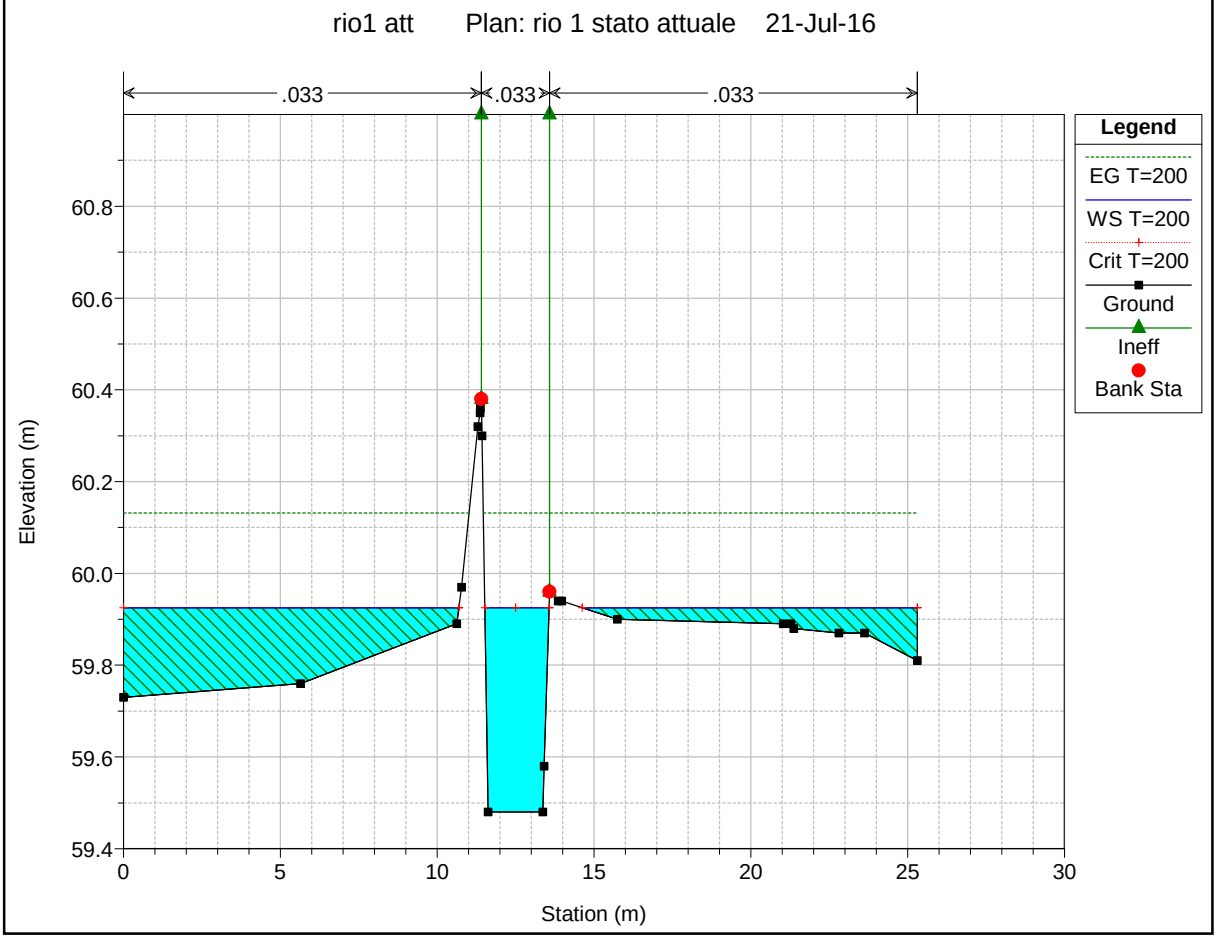

rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
66.5
66.0
65.5
65.0
64.5
64.0
63.5
63.0
62.5
0
2
4
6
8
10
12
14

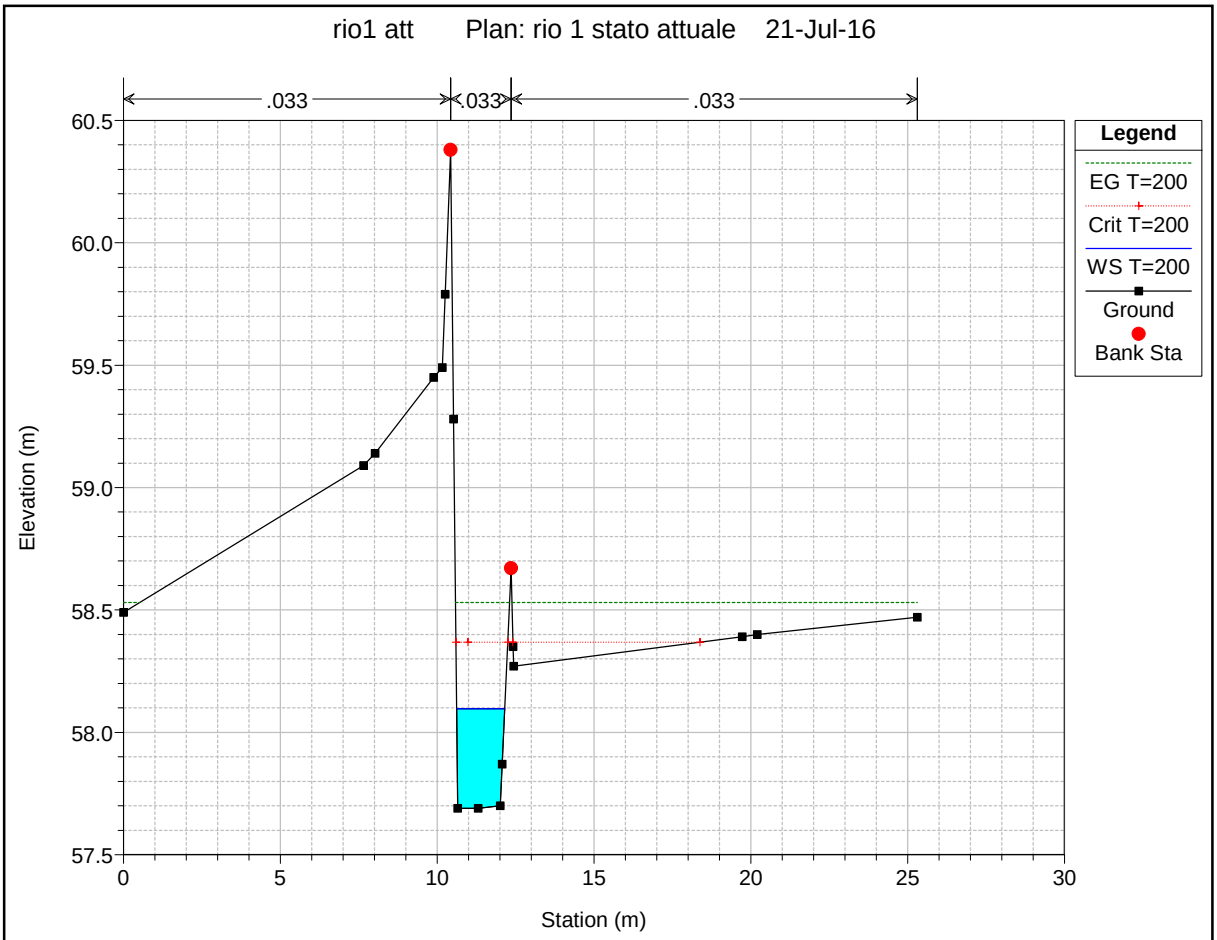

rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
64.0
63.5
63.0
62.5
62.0
61.5
61.0
60.5
60.0
0
5
10
15
20

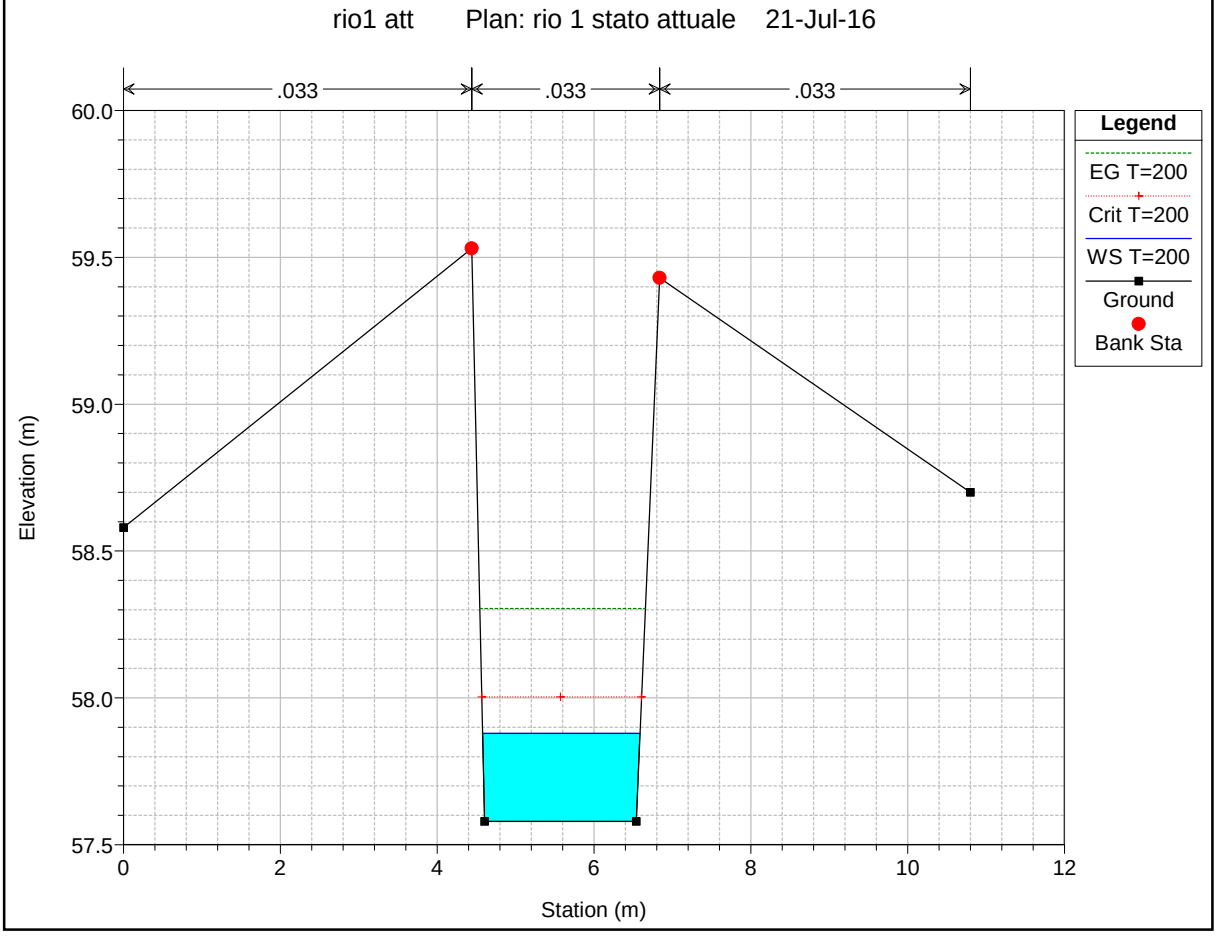

rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
64
63
62
61
60
59
58
0
5
10
15
20

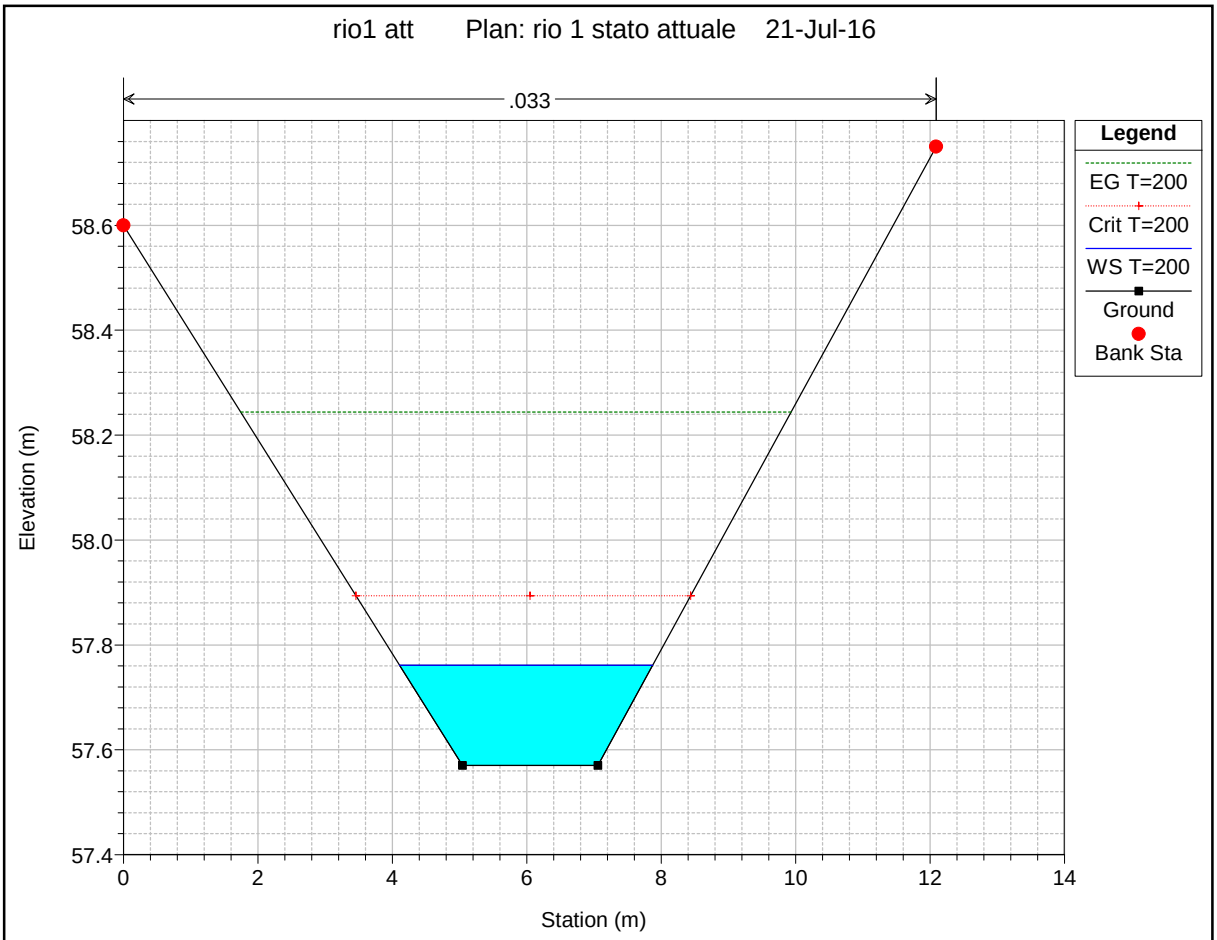

rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
63
62
61
60
59
58
0
5
10
15
20
25

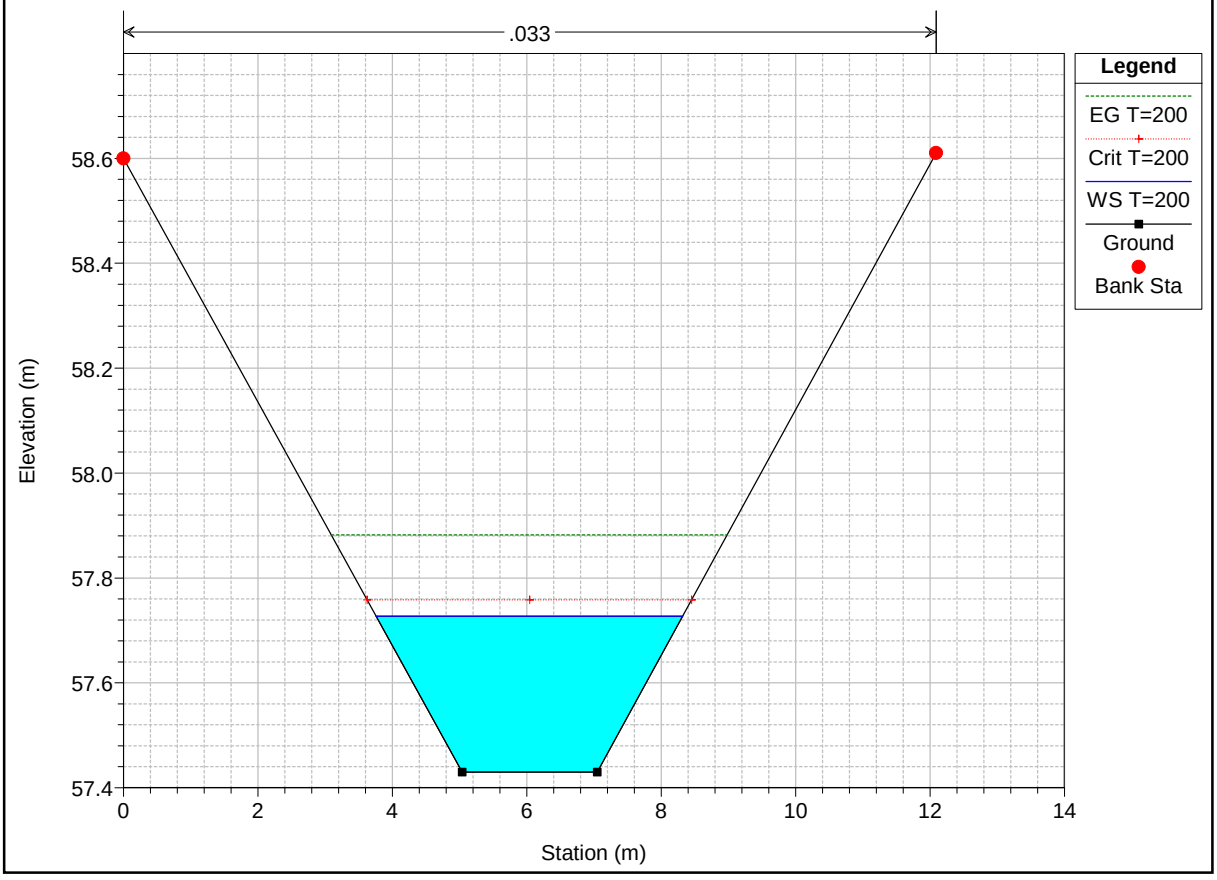

rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
0
5
10
15
20
Station (m)


rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
60.8
60.6
60.4
60.2
60.0
59.8
59.6
59.4
0
5
10
15
20
25
30
Station (m)


rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
60.5
60.0
59.5
59.0
58.5
58.0
57.5
0
5
10
15
20
25
30


rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
.033
.033
Legend
EG T=200
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
60.0
59.5
59.0
58.5
58.0
57.5
0
2
4
6
8
10
12


rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
Legend
EG T=200
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.6
58.4
58.2
58.0
57.8
57.6
57.4
0
2
4
6
8
10
12
14
Station (m)


rio1 att Plan: rio 1 stato attuale 21-Jul-16
.033
Legend
EG T=200
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.6
58.4
58.2
58.0
57.8
57.6
57.4
0
2
4
6
8
10
12
14
Station (m)

rio1 att Plan: rio 1 stato attuale 21-Jul-16

rio1 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

66

64

62

60

58

56

0.005

0.010

0.060

0.081

0.083

0.085

0.087

0.099

0

20

40

60

80

100

Main Channel Distance (m)

HEC-RAS Plan: rio1 River: rio1 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.099	T=200	1.70	62.68	62.89	63.13	4.64	0.46	63.35	2.69	65.58	1.10	3.35
Reach 1	0.087	T=200	1.70	60.33	60.60	60.79	3.96	1.16	61.76	0.52	61.12	0.80	3.06
Reach 1	0.085	T=200	1.70	58.44	60.39	58.96	0.33	1.02	61.41	0.58	60.97	0.01	0.09
Reach 1	0.083	T=200	1.70	58.48	60.39	58.98	0.32	0.73	61.12	0.34	60.73	0.01	0.09
Reach 1	0.081	T=200	1.70	59.84	60.32	60.23	1.17	0.54	60.86	0.21	60.53	0.07	0.67
Reach 1	0.060	T=200	1.70	59.48	59.93	59.93	2.01	0.45	60.38	0.03	59.96	0.21	1.00
Reach 1	0.010	T=200	1.70	57.69	58.10	58.37	2.92	2.28	60.38	0.57	58.67	0.43	1.51
Reach 1	0.006	T=200	1.70	57.58	57.88	58.00	2.89	1.65	59.53	1.55	59.43	0.43	1.70
Reach 1	0.005	T=200	1.70	57.57	57.76	57.89	3.08	0.84	58.60	0.99	58.75	0.48	2.57
Reach 1	0.000	T=200	1.70	57.43	57.73	57.76	1.74	0.87	58.60	0.88	58.61	0.15	1.20

VERIFICA IDRAULICA

RIO 1

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

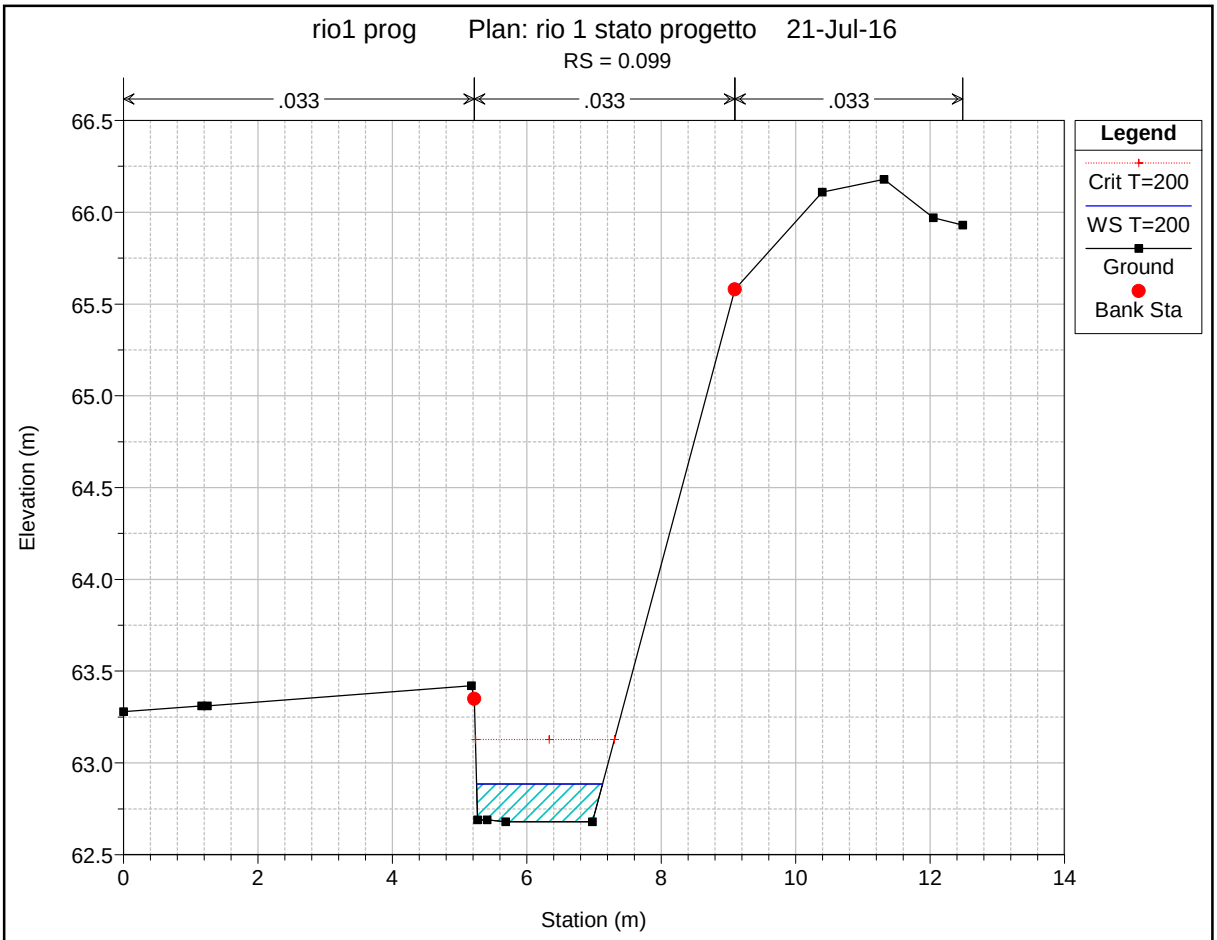
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

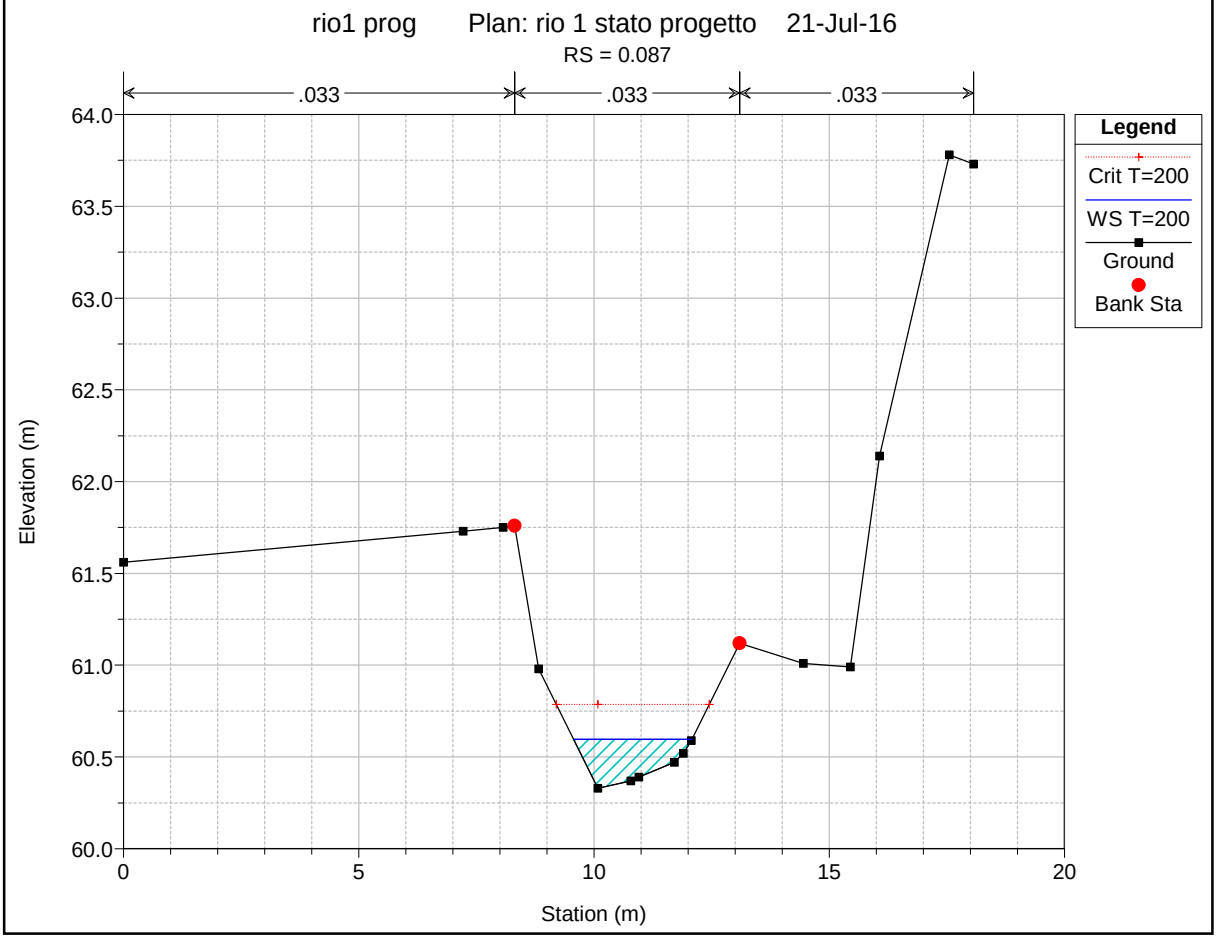
Vel Chnl = Velocità della corrente nel canale.

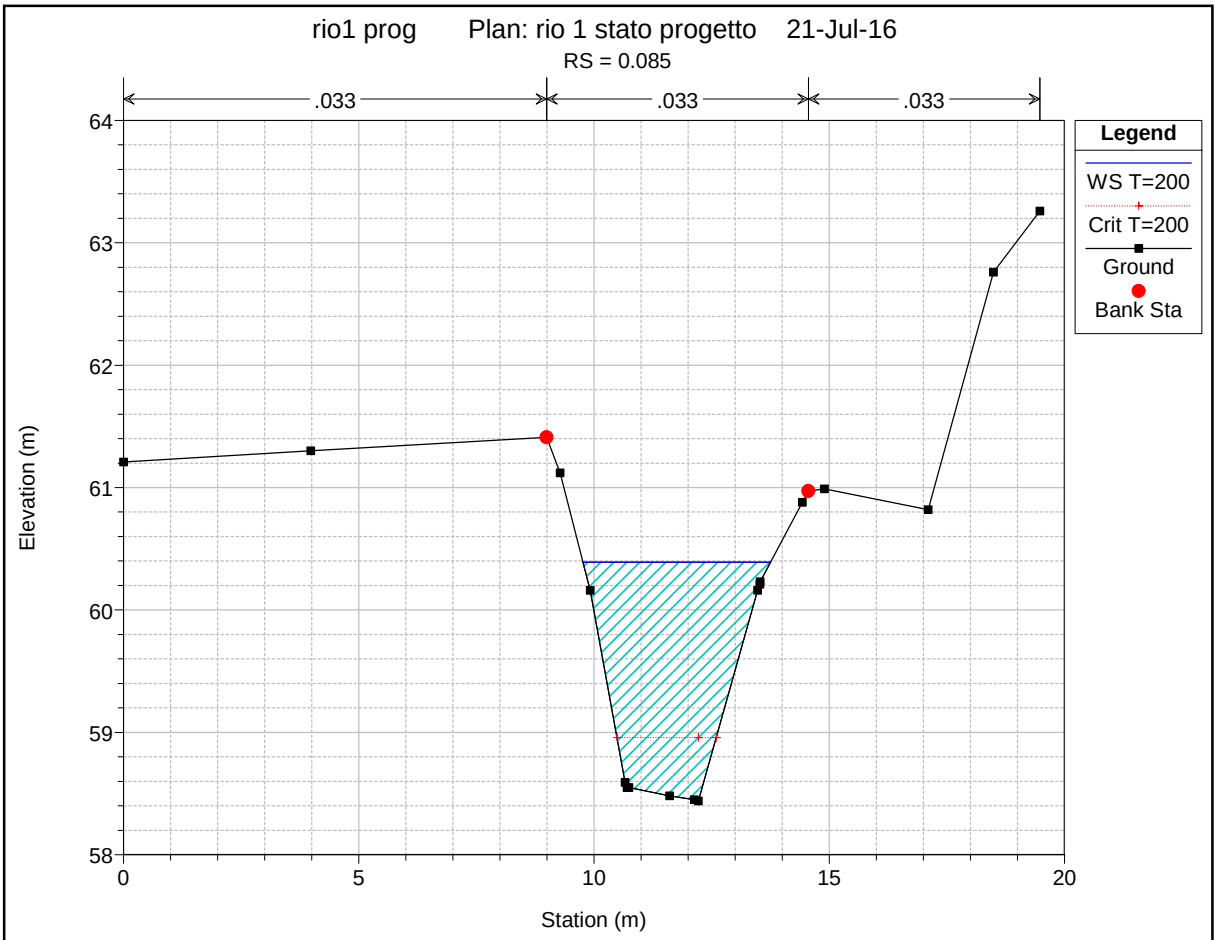
Froude = n° di froude della corrente.

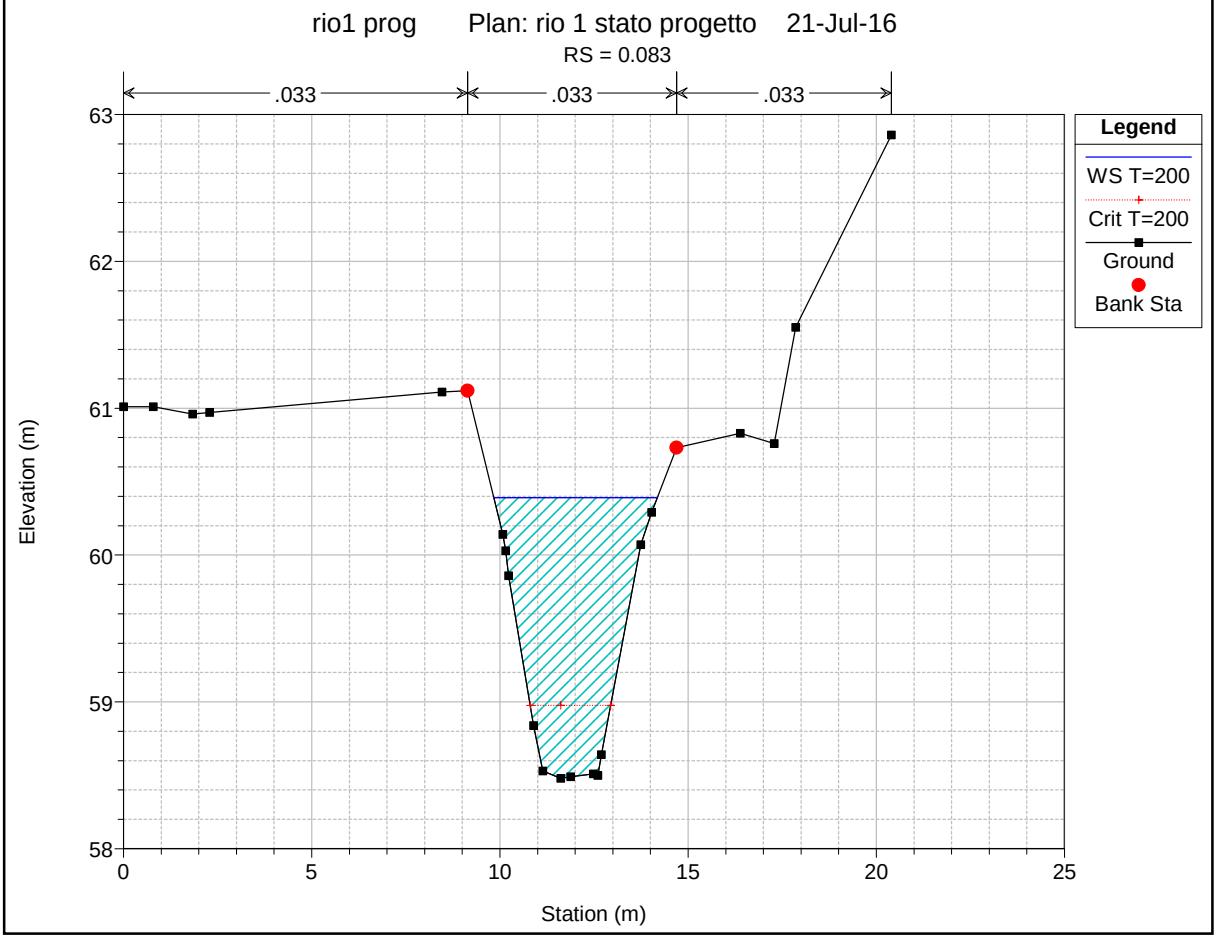
Vel. Head = $U^2/2g$.

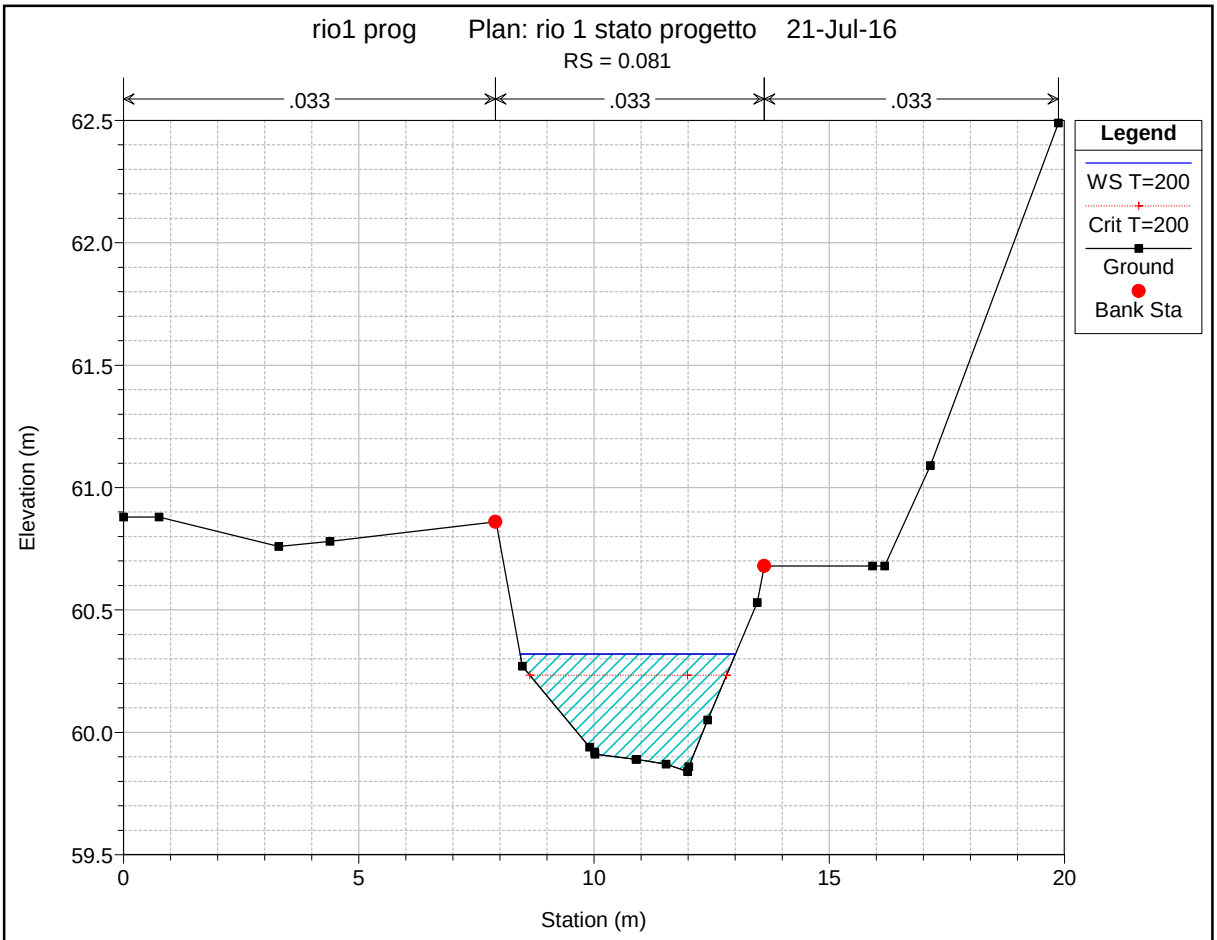
STATO di PROGETTO

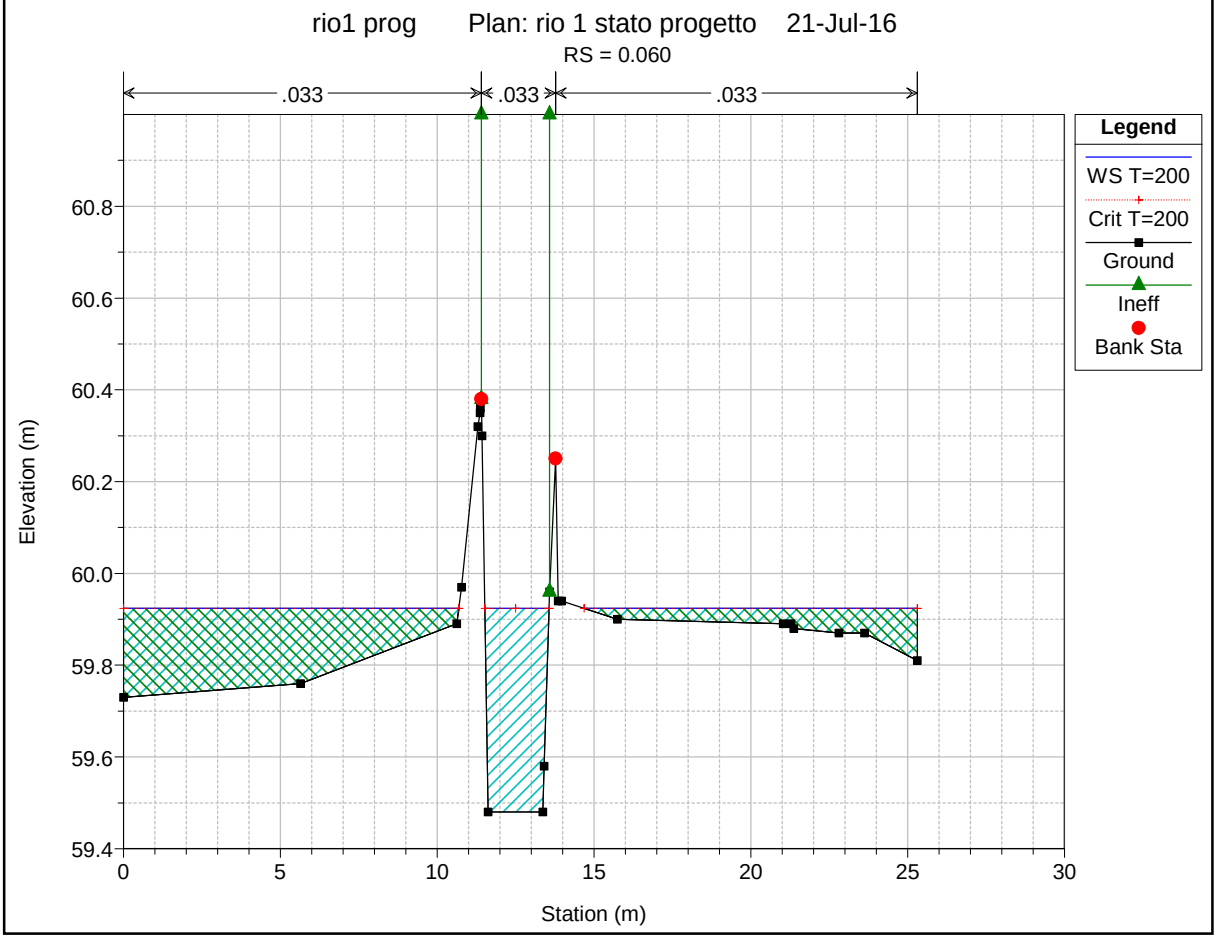

rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.099
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
66.5
66.0
65.5
65.0
64.5
64.0
63.5
63.0
62.5
0
2
4
6
8
10
12
14

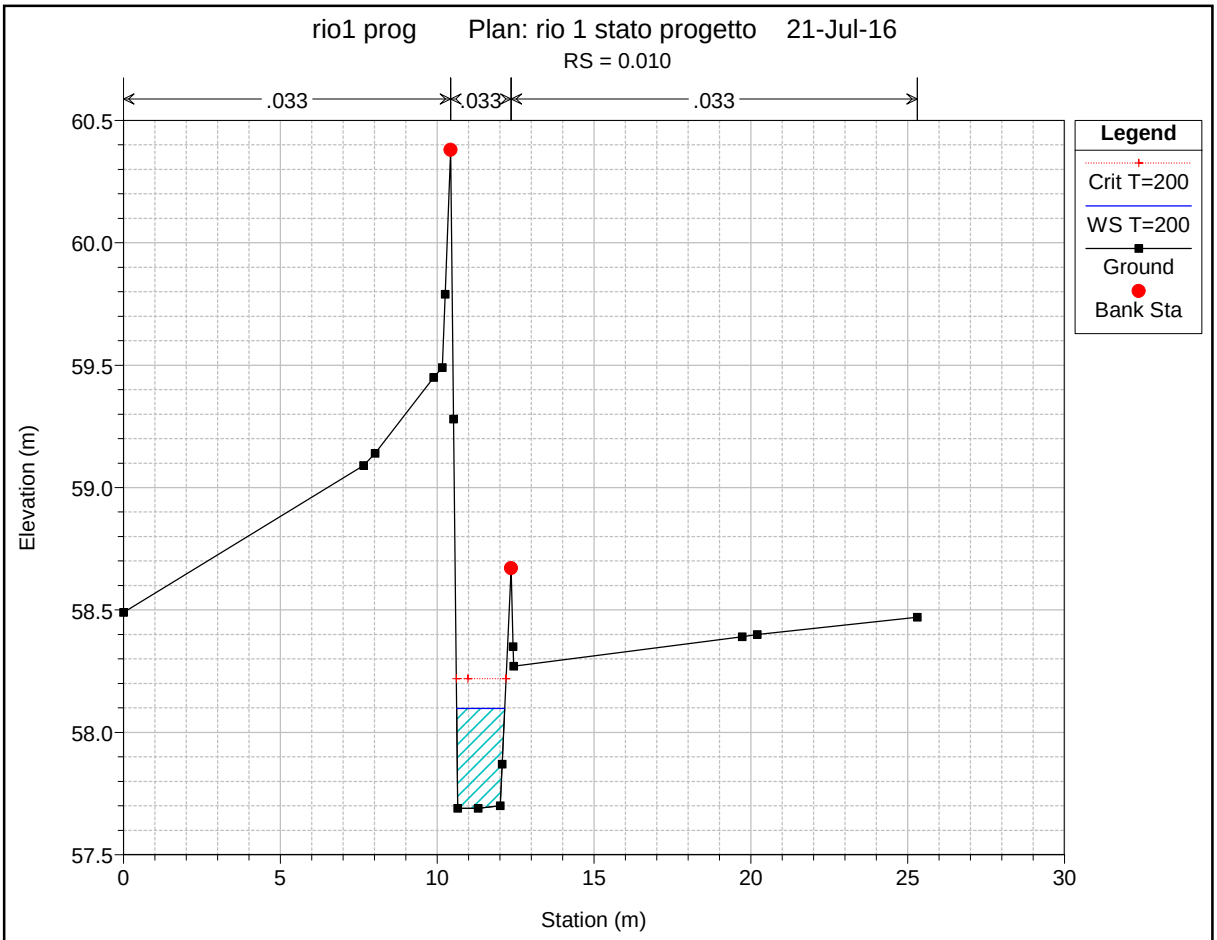

rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.087
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
64.0
63.5
63.0
62.5
62.0
61.5
61.0
60.5
60.0
0
5
10
15
20

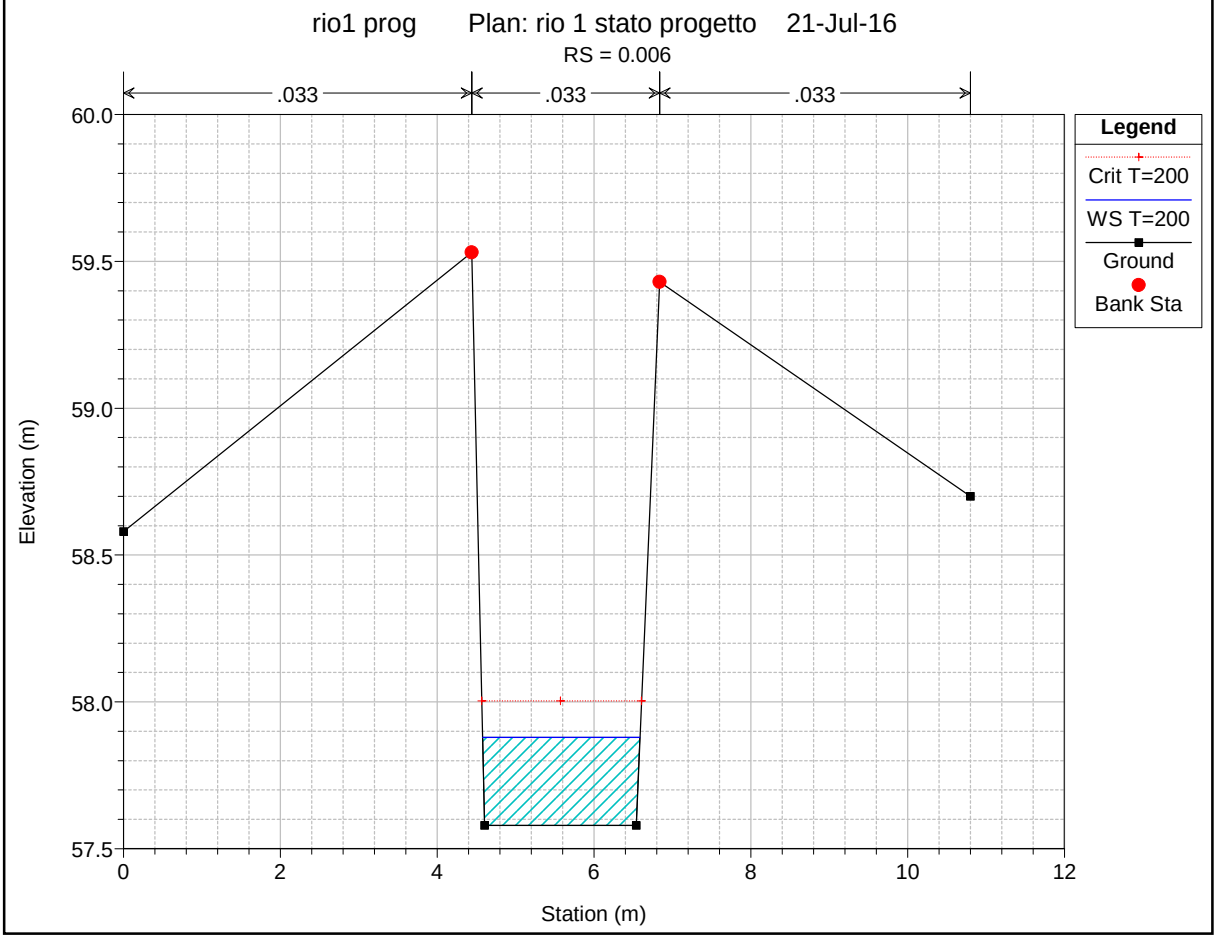

rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.085
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
64
63
62
61
60
59
58
0
5
10
15
20

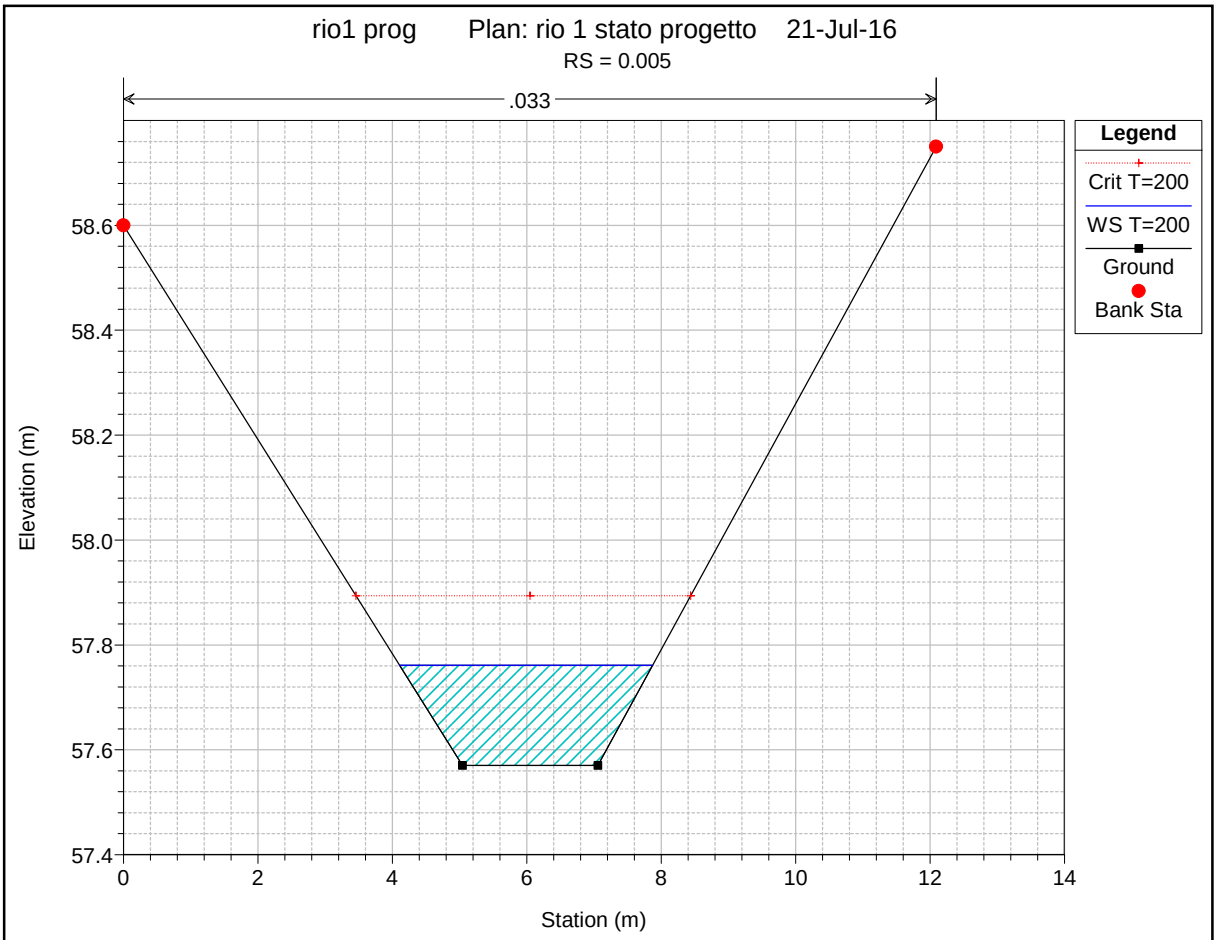

rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.083
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
63
62
61
60
59
58
0
5
10
15
20
25

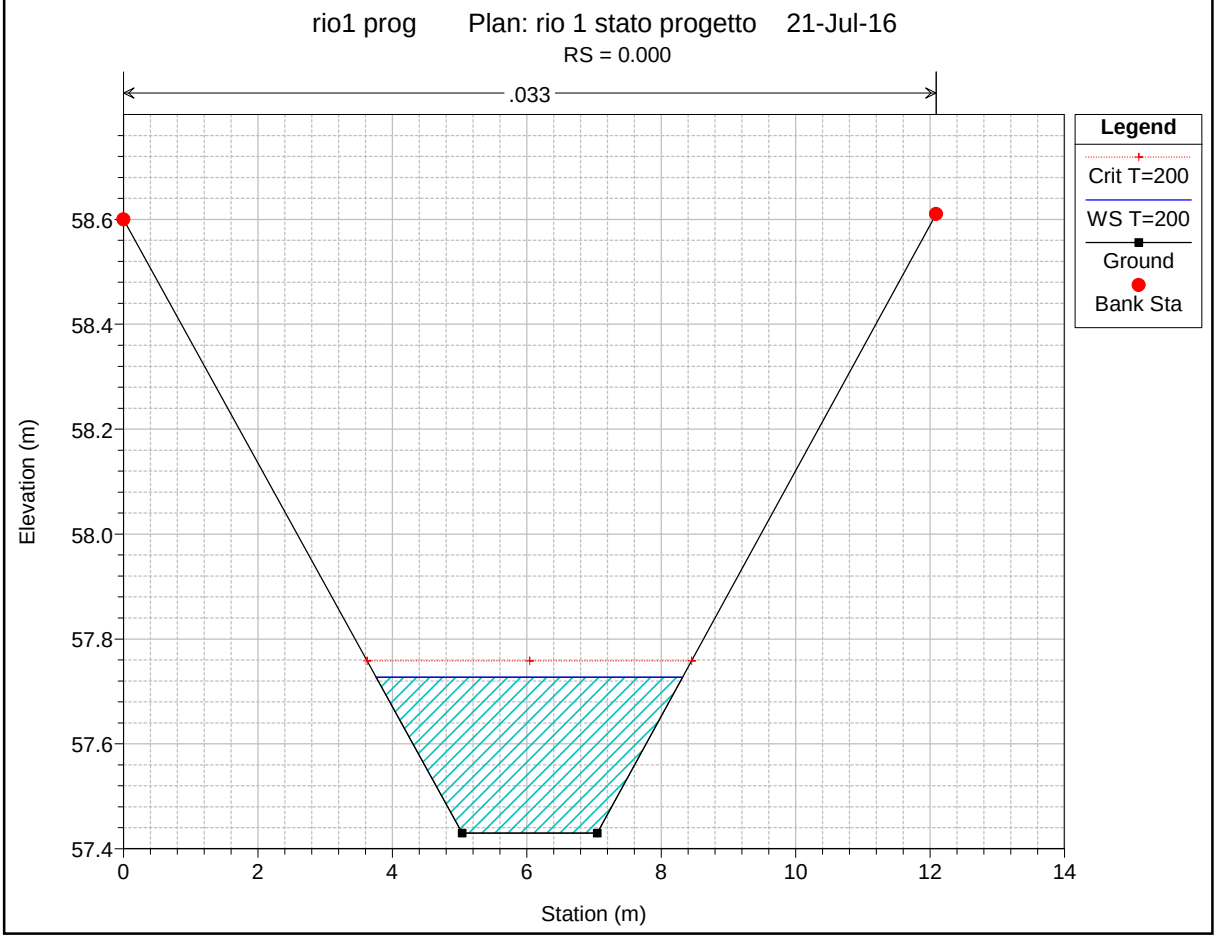

rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.081
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
0
5
10
15
20
Station (m)


rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.060
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
60.8
60.6
60.4
60.2
60.0
59.8
59.6
59.4
0
5
10
15
20
25
30
Station (m)


rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.010
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
60.5
60.0
59.5
59.0
58.5
58.0
57.5
0
5
10
15
20
25
30

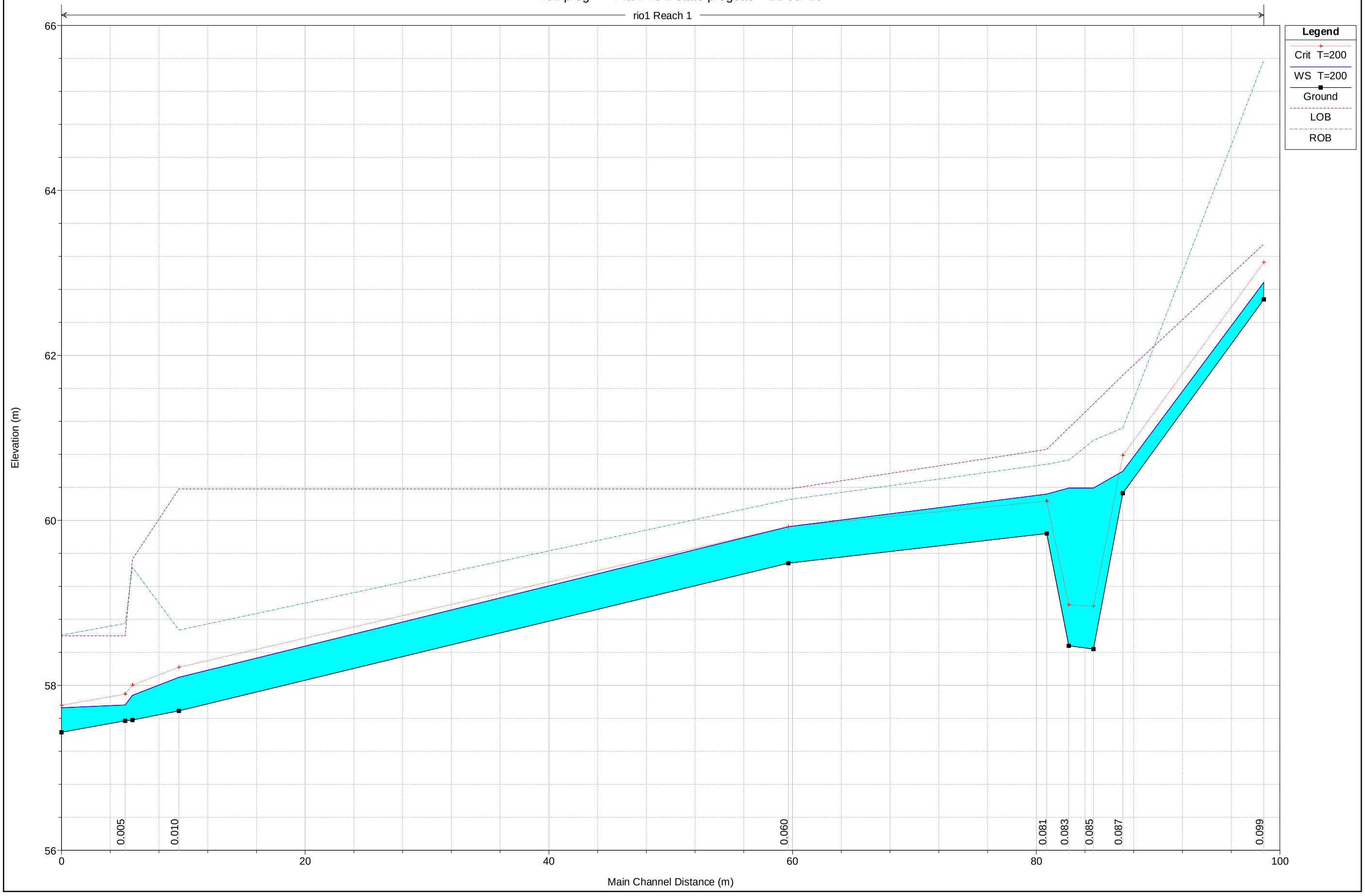

rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.006
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
60.0
59.5
59.0
58.5
58.0
57.5
0
2
4
6
8
10
12


rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.005
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.6
58.4
58.2
58.0
57.8
57.6
57.4
0
2
4
6
8
10
12
14
Station (m)


rio1 prog Plan: rio 1 stato progetto 21-Jul-16
RS = 0.000
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.6
58.4
58.2
58.0
57.8
57.6
57.4
0
2
4
6
8
10
12
14
Station (m)

rio1 prog Plan: rio 1 stato progetto 21-Jul-16

rio1 Reach 1



HEC-RAS Plan: rio1 River: rio1 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.099	T=200	1.70	62.68	62.89	63.13	4.64	0.46	63.35	2.69	65.58	1.10	3.35
Reach 1	0.087	T=200	1.70	60.33	60.60	60.79	3.96	1.16	61.76	0.52	61.12	0.80	3.06
Reach 1	0.085	T=200	1.70	58.44	60.39	58.96	0.33	1.02	61.41	0.58	60.97	0.01	0.09
Reach 1	0.083	T=200	1.70	58.48	60.39	58.98	0.32	0.73	61.12	0.34	60.73	0.01	0.09
Reach 1	0.081	T=200	1.70	59.84	60.32	60.23	1.17	0.54	60.86	0.36	60.68	0.07	0.67
Reach 1	0.060	T=200	1.70	59.48	59.92	59.92	2.02	0.46	60.38	0.33	60.25	0.21	1.01
Reach 1	0.010	T=200	1.70	57.69	58.10	58.22	2.91	2.28	60.38	0.57	58.67	0.43	1.51
Reach 1	0.006	T=200	1.70	57.58	57.88	58.00	2.89	1.65	59.53	1.55	59.43	0.42	1.70
Reach 1	0.005	T=200	1.70	57.57	57.76	57.89	3.08	0.84	58.60	0.99	58.75	0.48	2.56
Reach 1	0.000	T=200	1.70	57.43	57.73	57.76	1.74	0.87	58.60	0.88	58.61	0.15	1.20

VERIFICA IDRAULICA

RIO 2

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

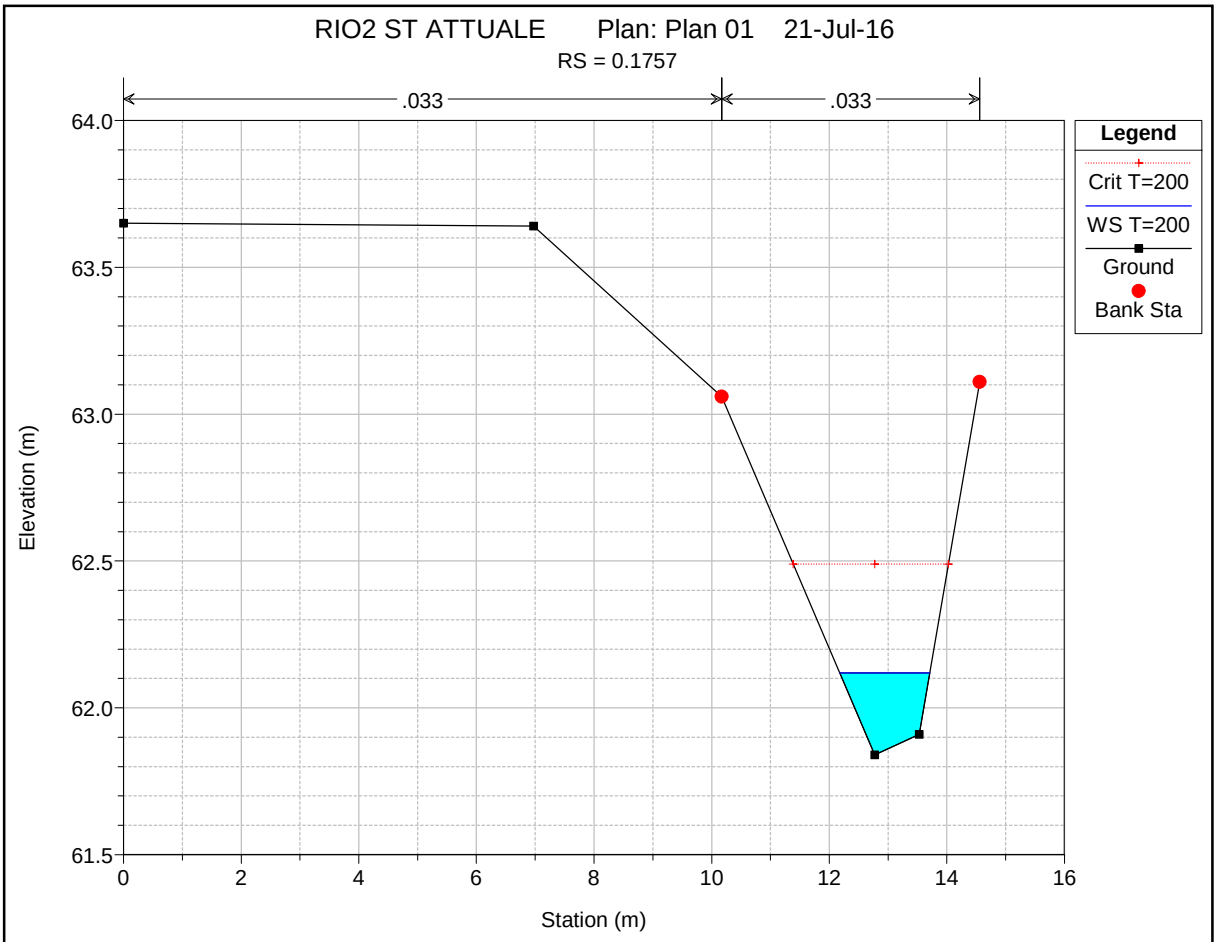
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

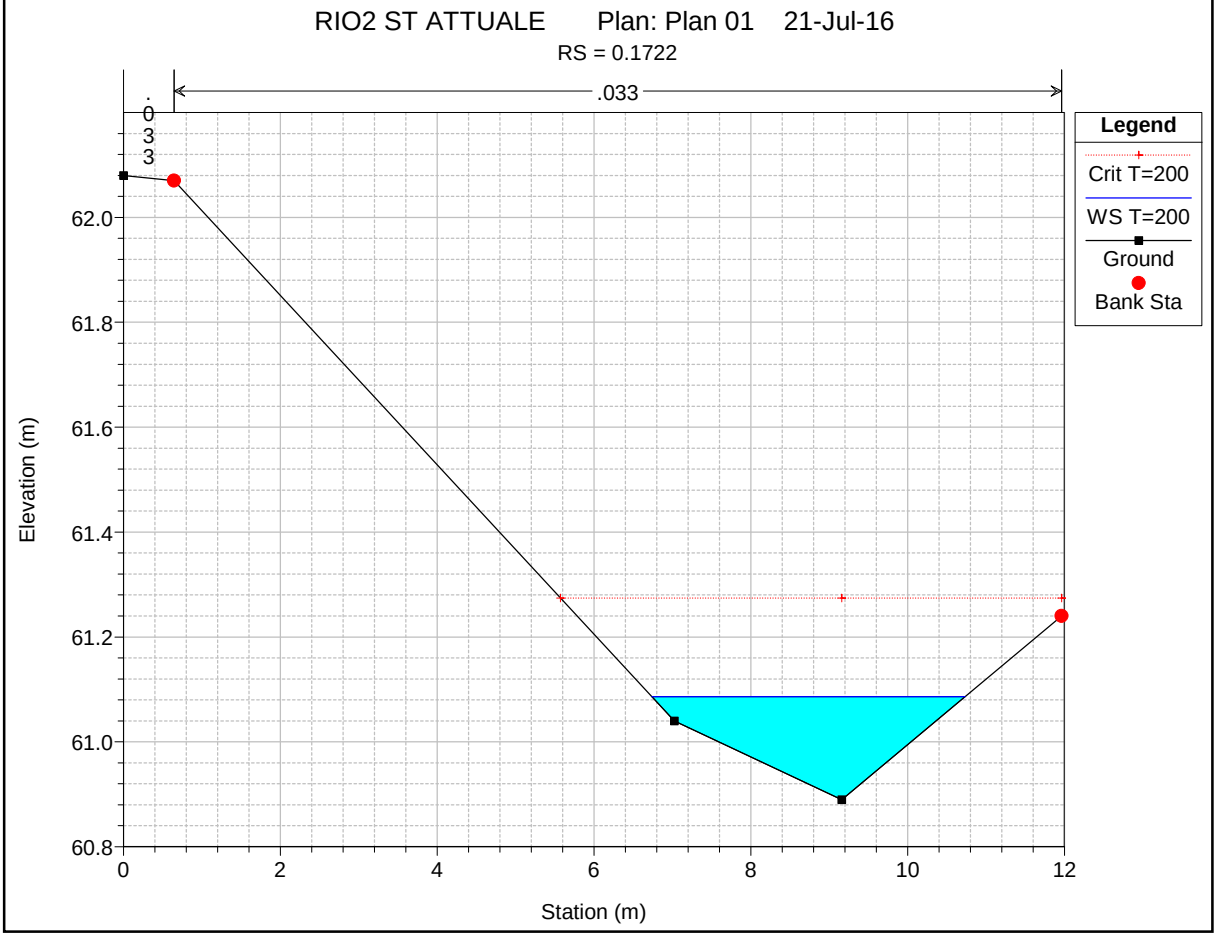
Vel Chnl = Velocità della corrente nel canale.

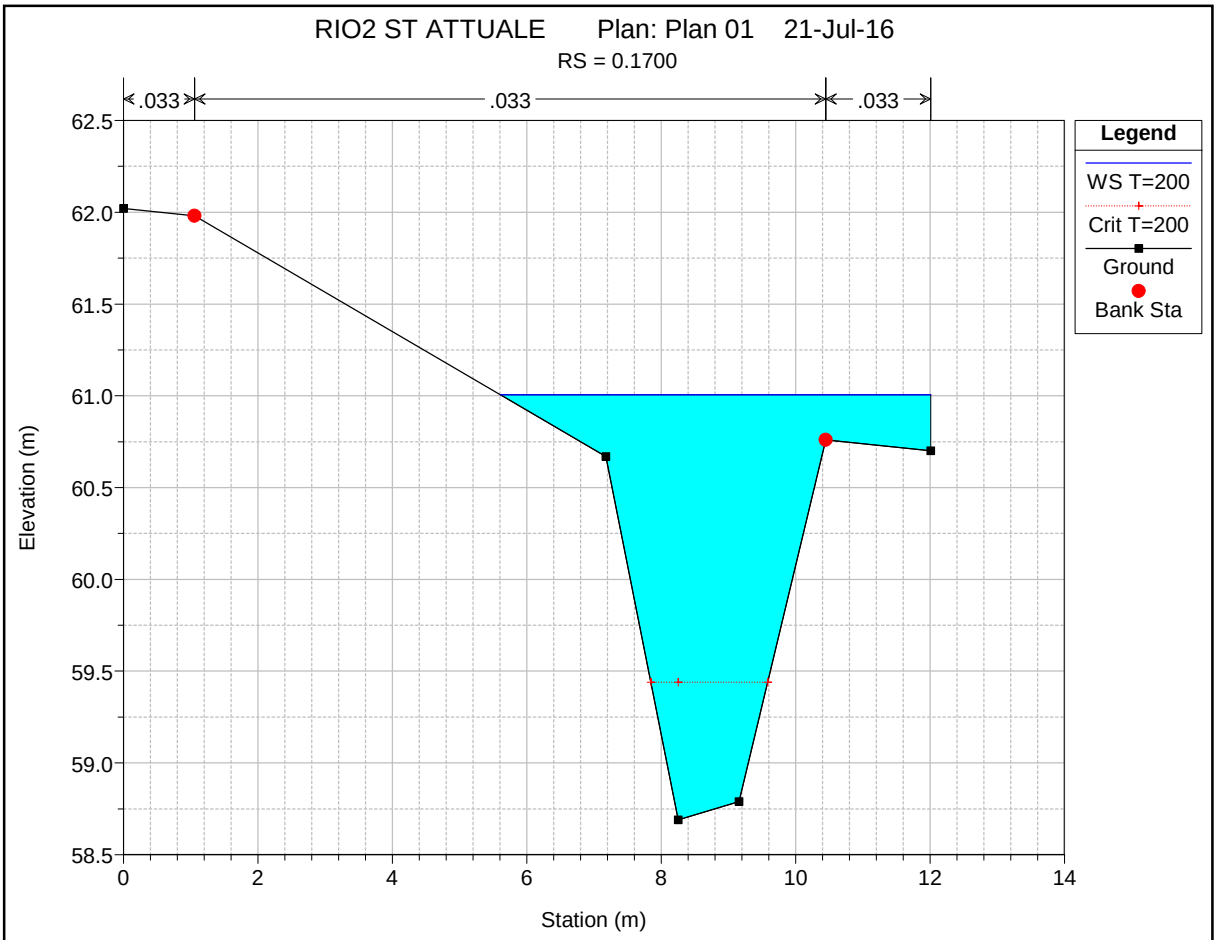
Froude = n° di froude della corrente.

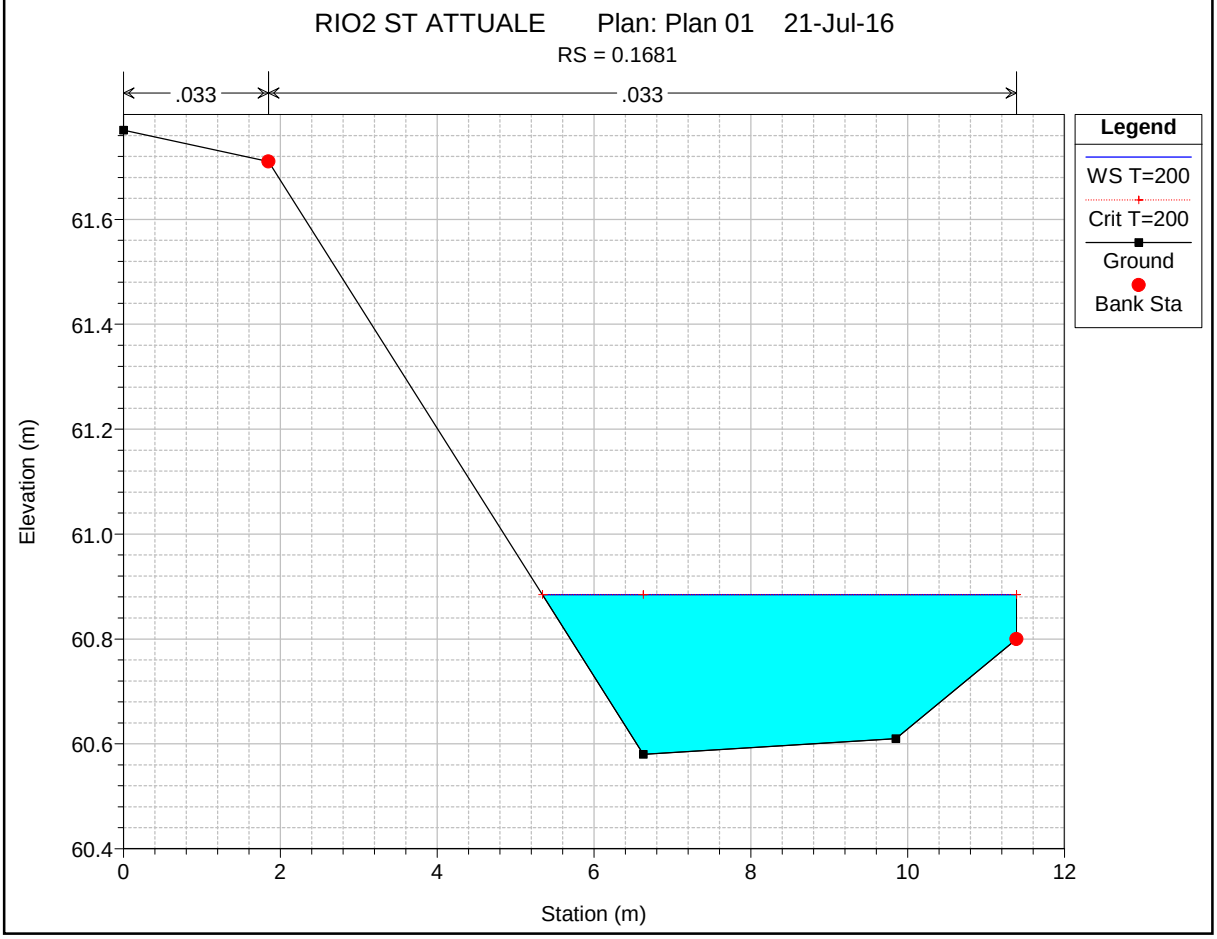
Vel. Head = $U^2/2g$.

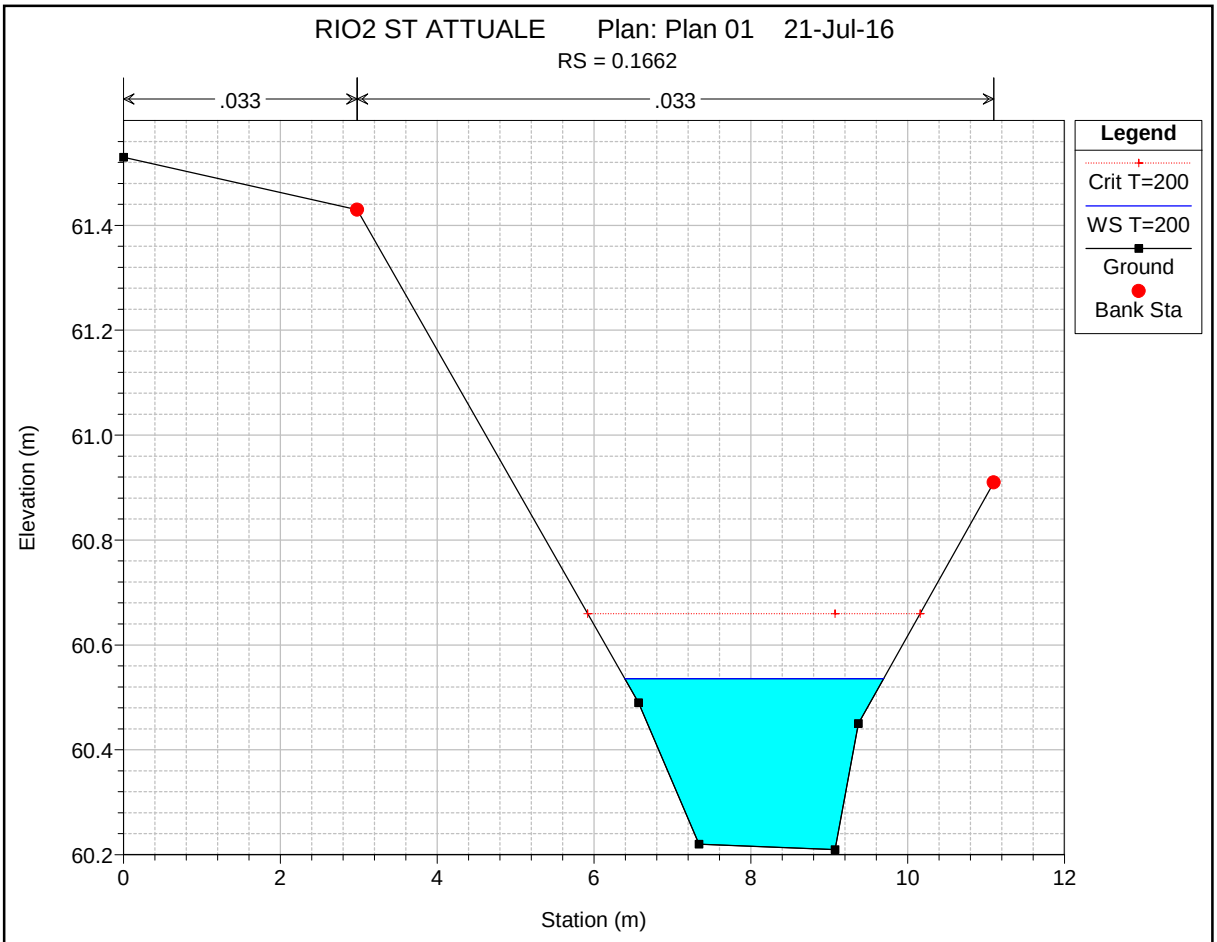
STATO ATTUALE

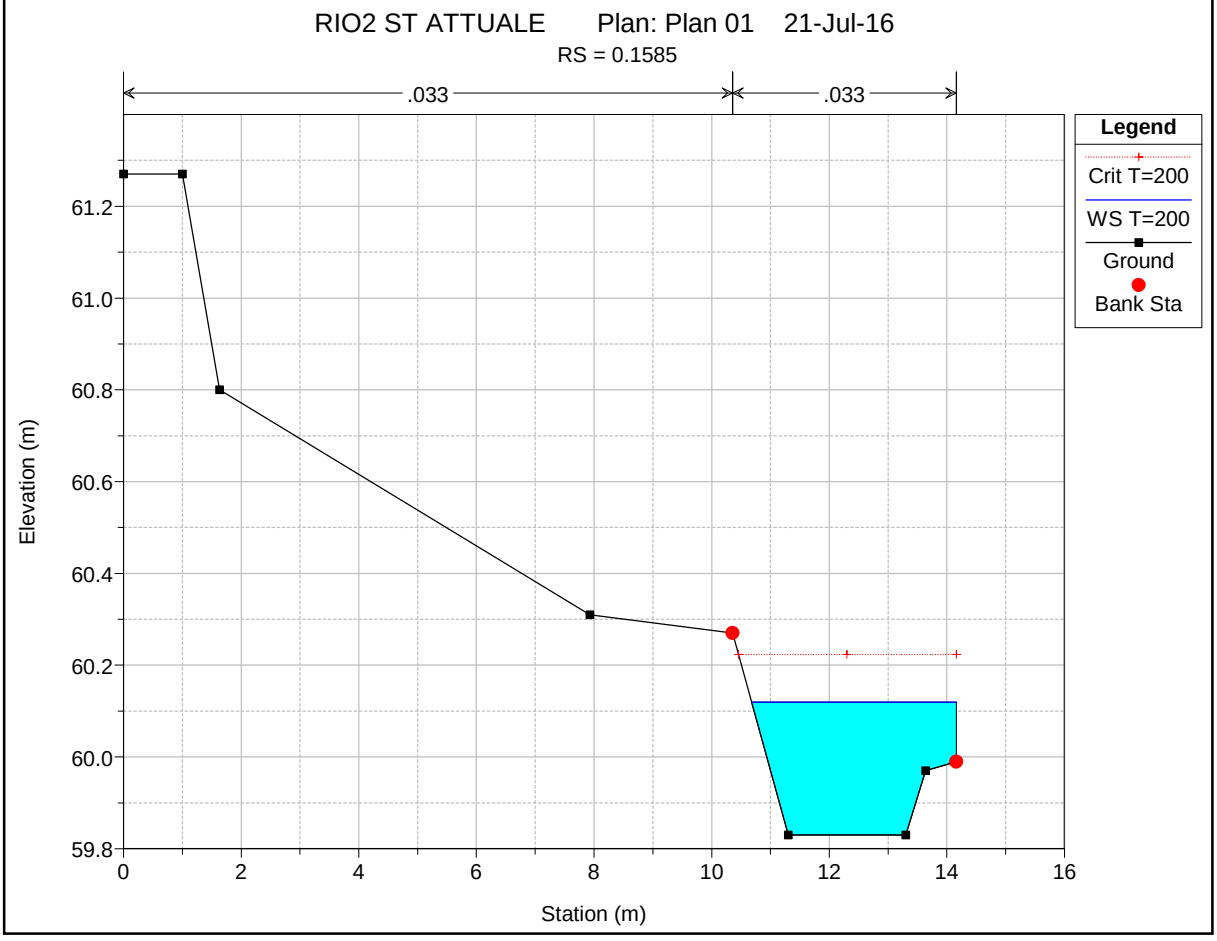

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1757
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
64.0
63.5
63.0
62.5
62.0
61.5
0
2
4
6
8
10
12
14
16

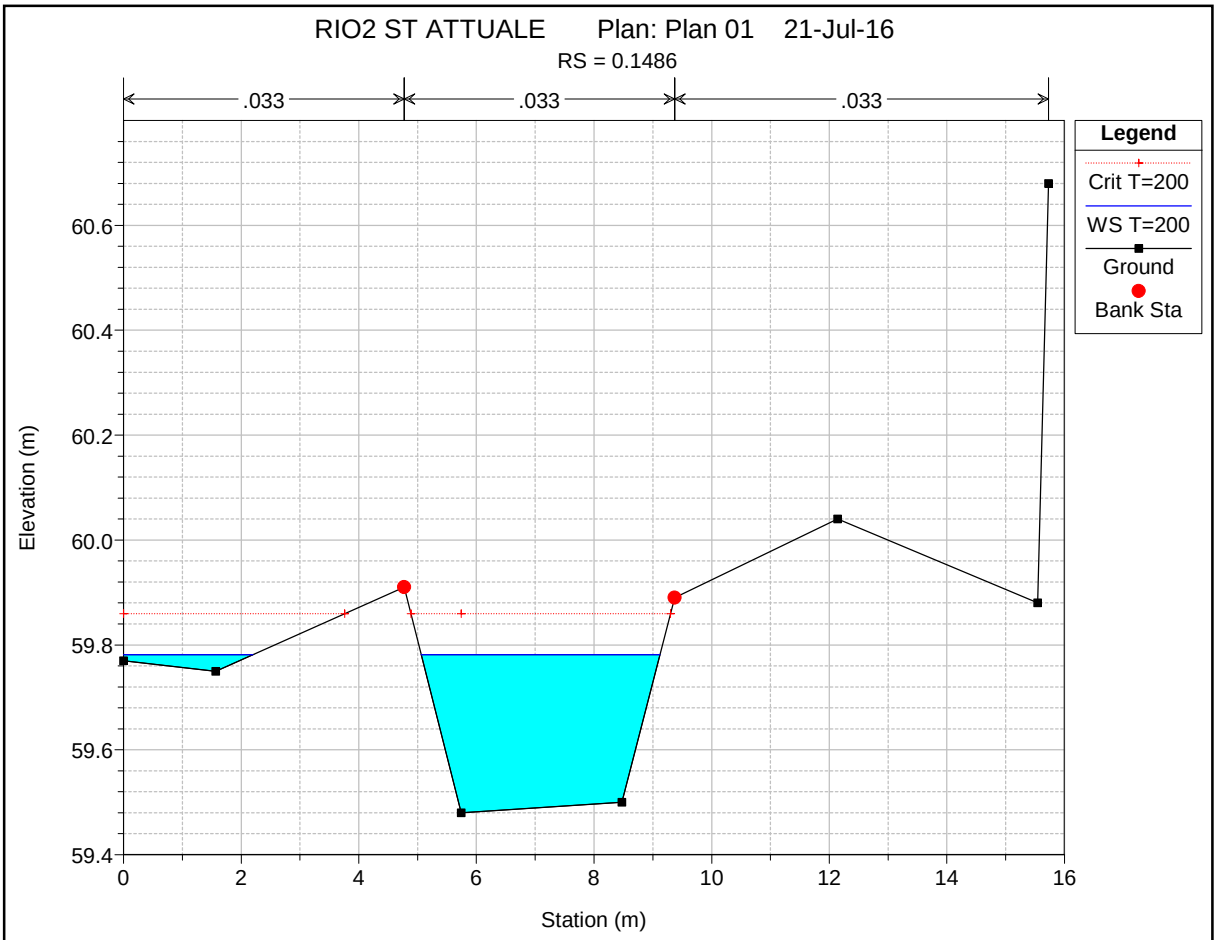

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1722
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.0
61.8
61.6
61.4
61.2
61.0
60.8
0
2
4
6
8
10
12

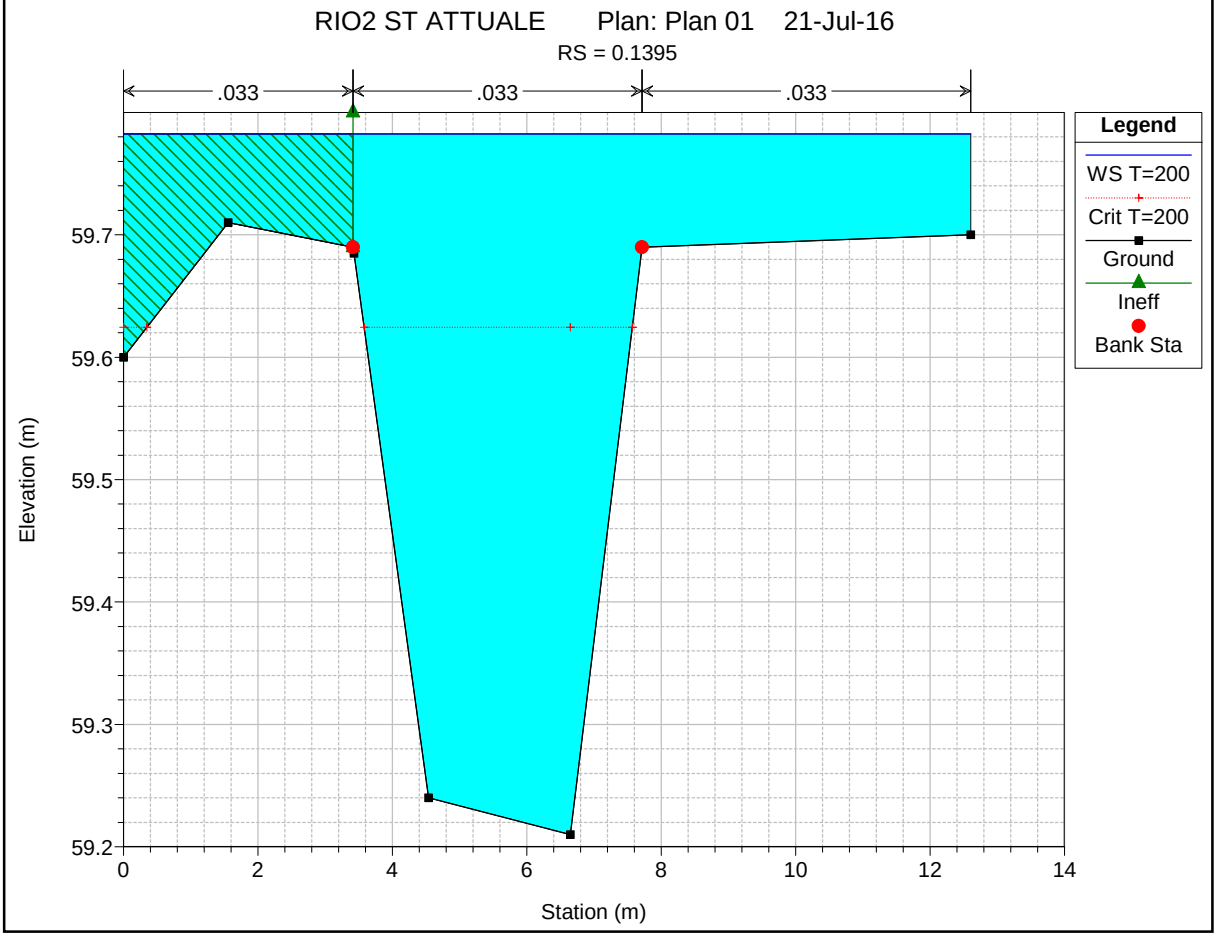

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1700
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
58.5
0
2
4
6
8
10
12
14

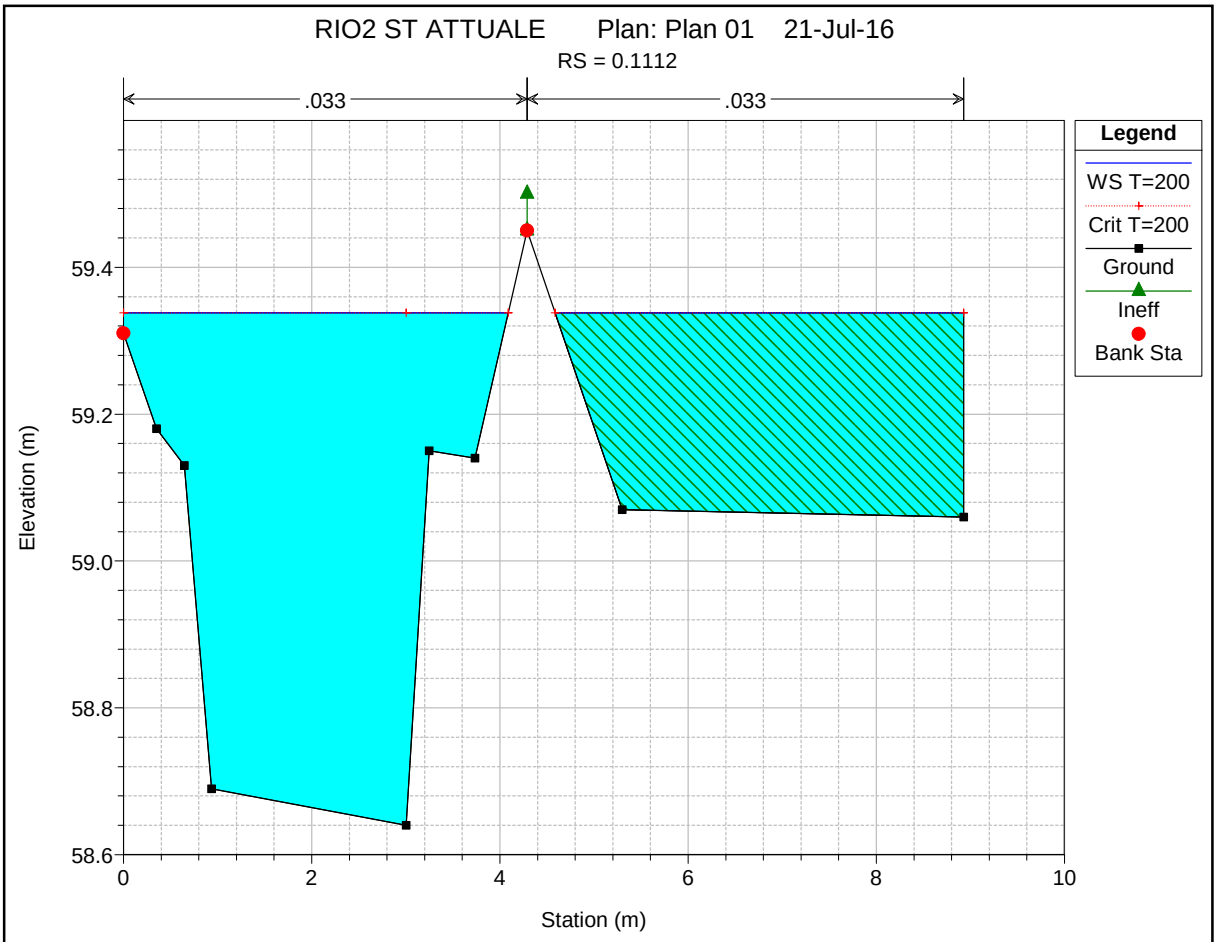

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1681
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
61.6
61.4
61.2
61.0
60.8
60.6
60.4
0
2
4
6
8
10
12

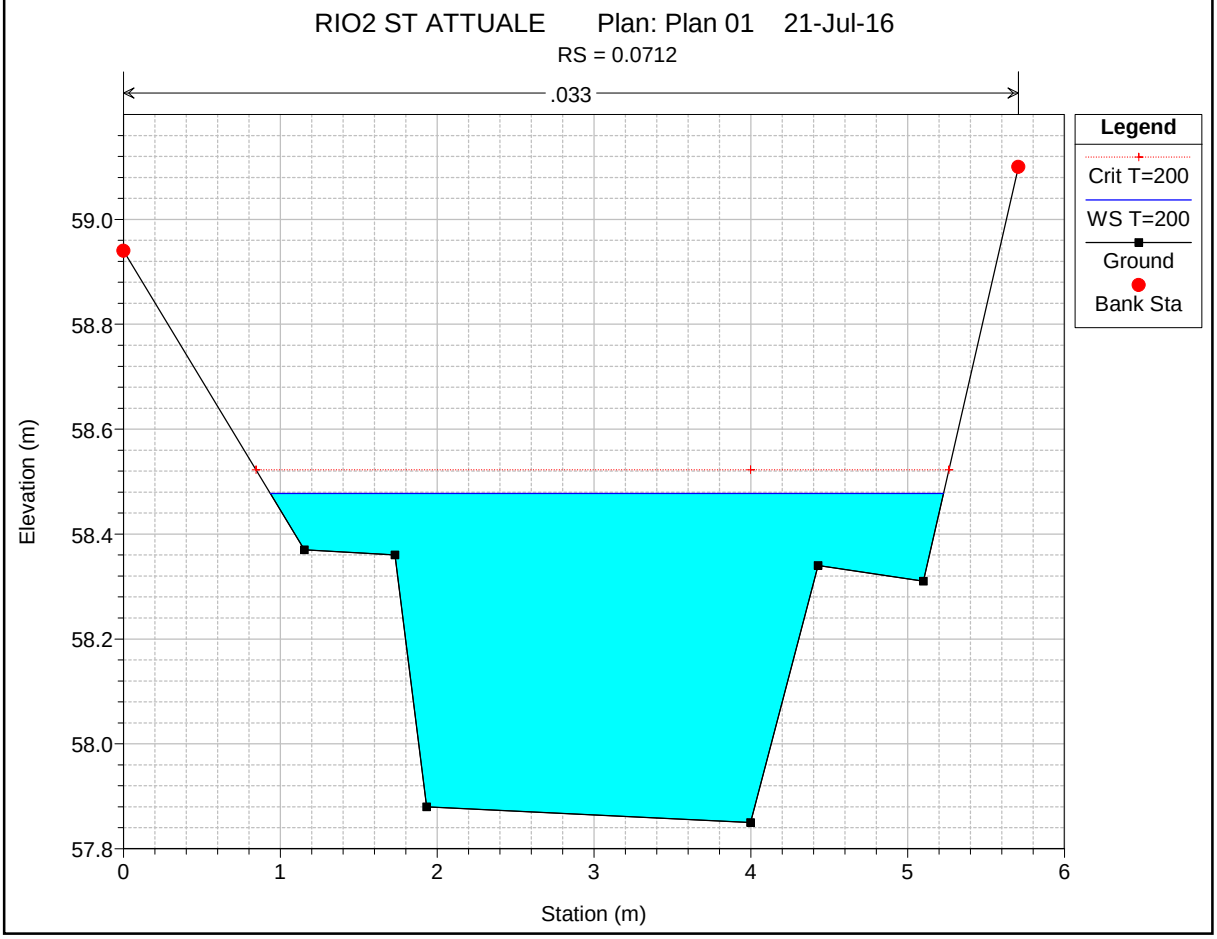

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1662
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
61.4
61.2
61.0
60.8
60.6
60.4
60.2
0
2
4
6
8
10
12
Station (m)

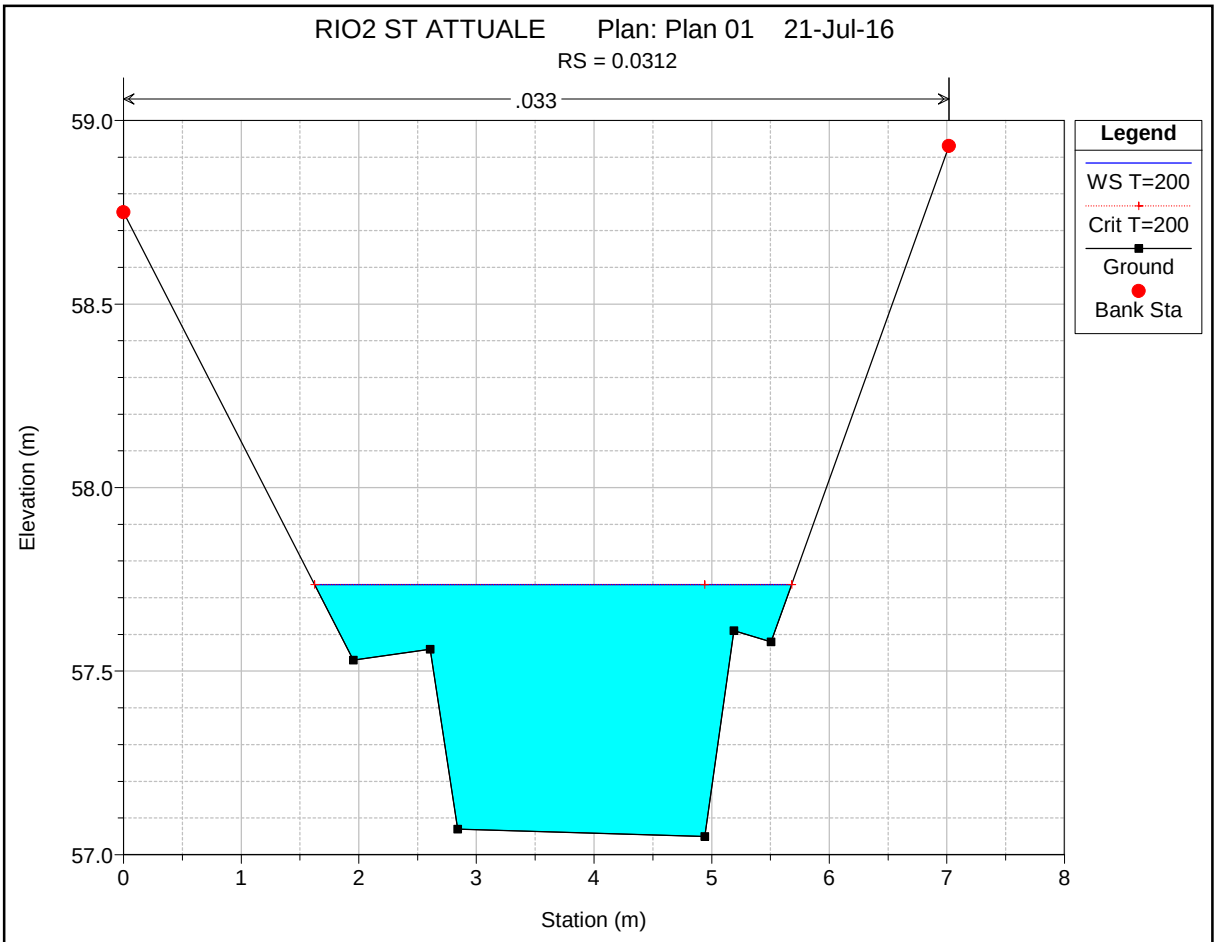

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1585
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
61.2
61.0
60.8
60.6
60.4
60.2
60.0
59.8
0
2
4
6
8
10
12
14
16
Station (m)

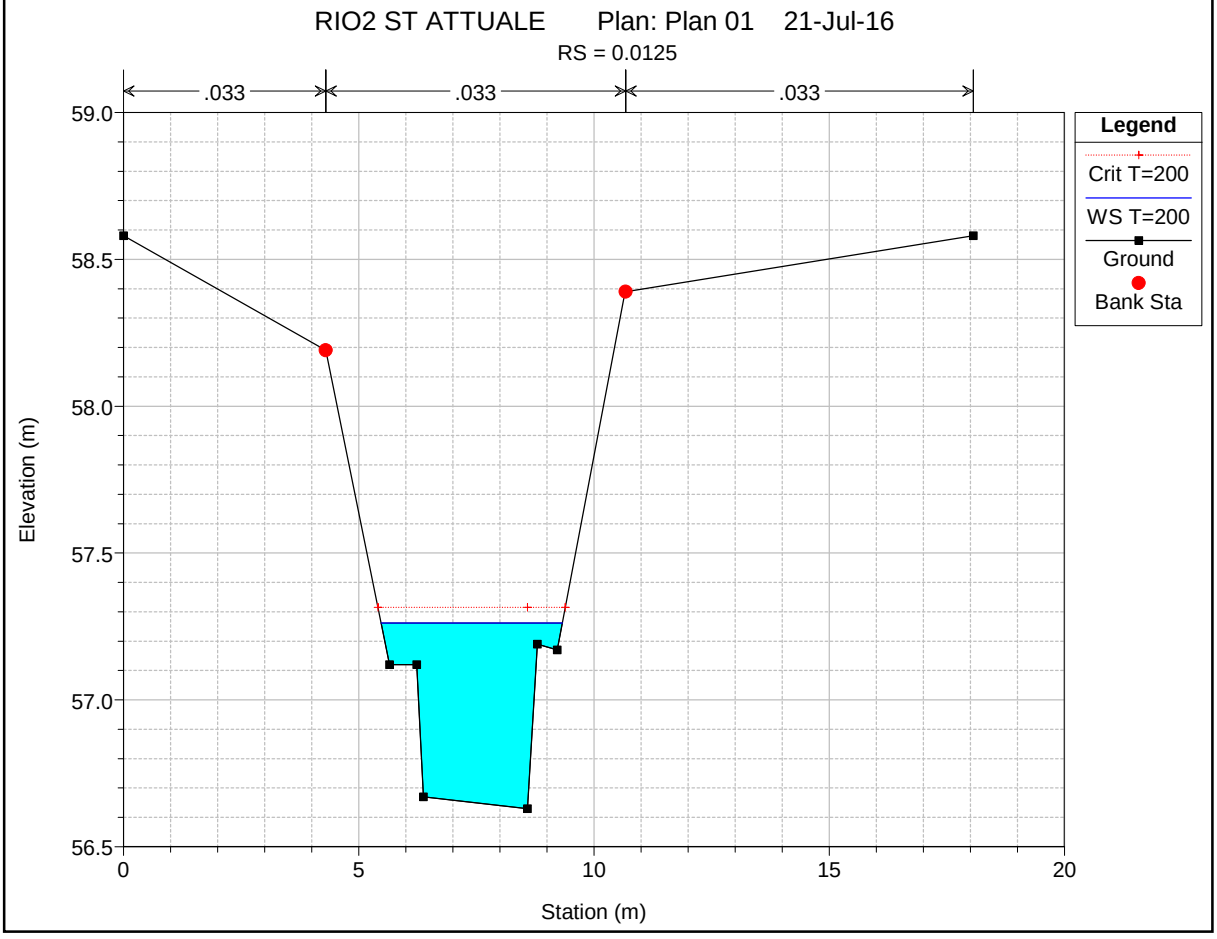

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1486
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
60.6
60.4
60.2
60.0
59.8
59.6
59.4
0
2
4
6
8
10
12
14
16
Station (m)

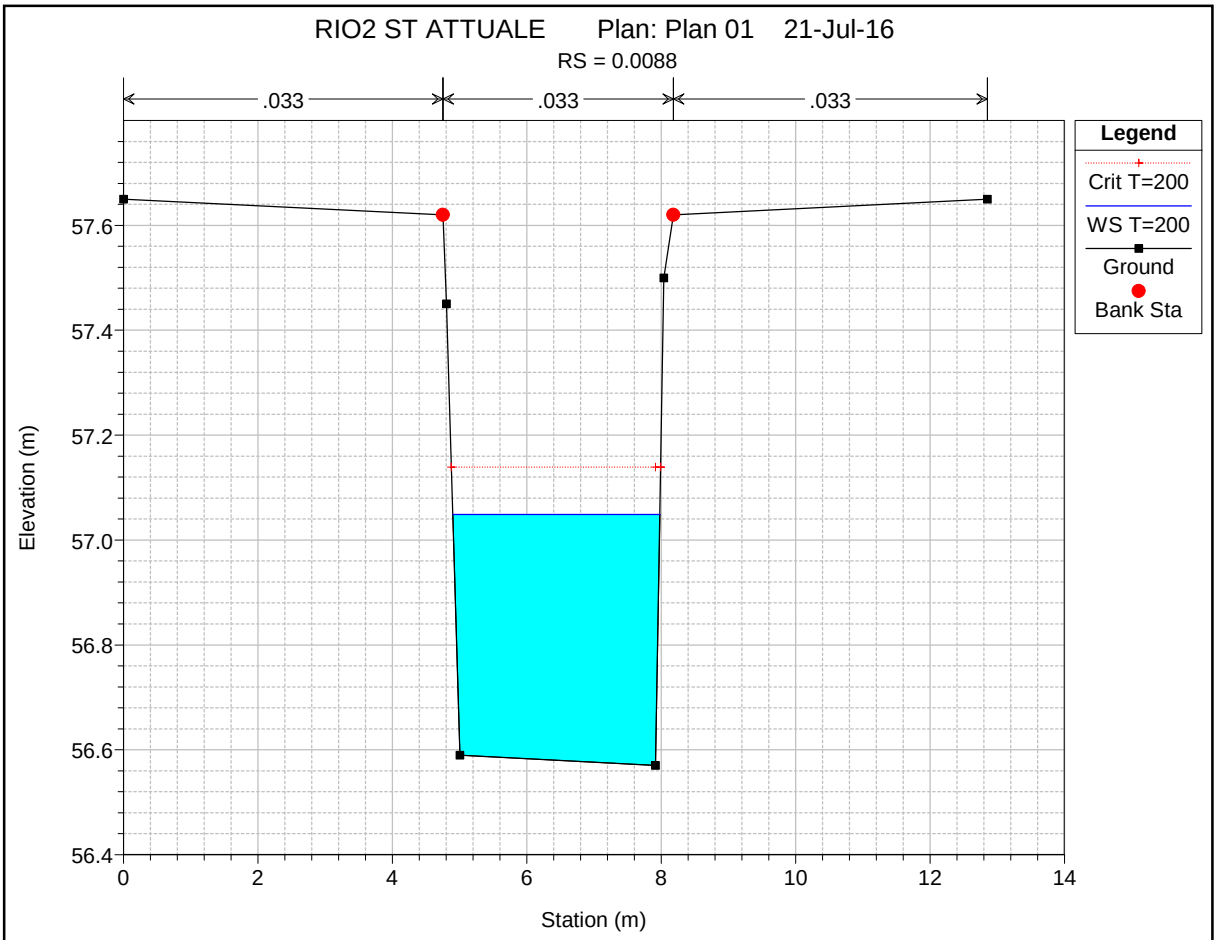

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1395
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
59.7
59.6
59.5
59.4
59.3
59.2
0
2
4
6
8
10
12
14
Station (m)

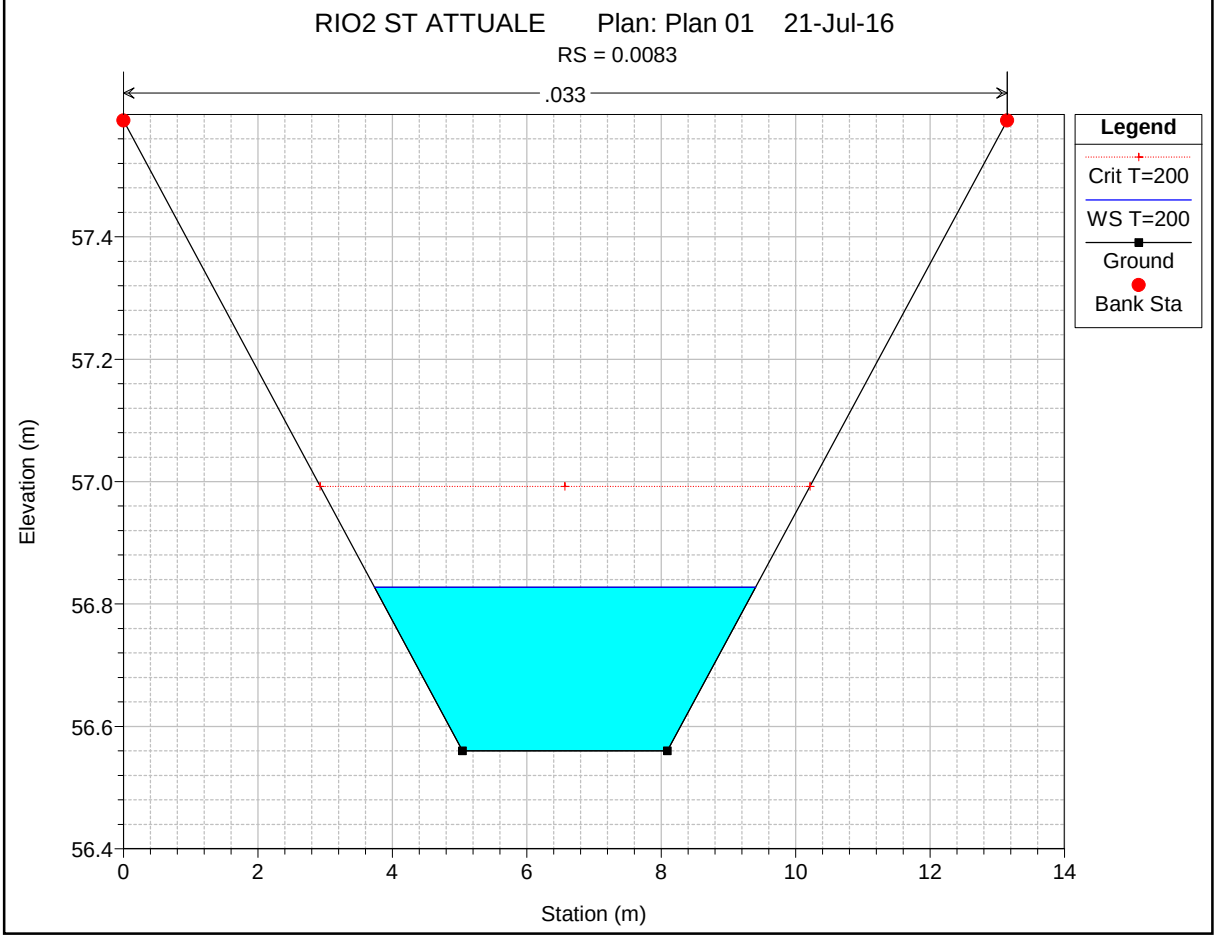

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.1112
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
59.4
59.2
59.0
58.8
58.6
0
2
4
6
8
10
Station (m)

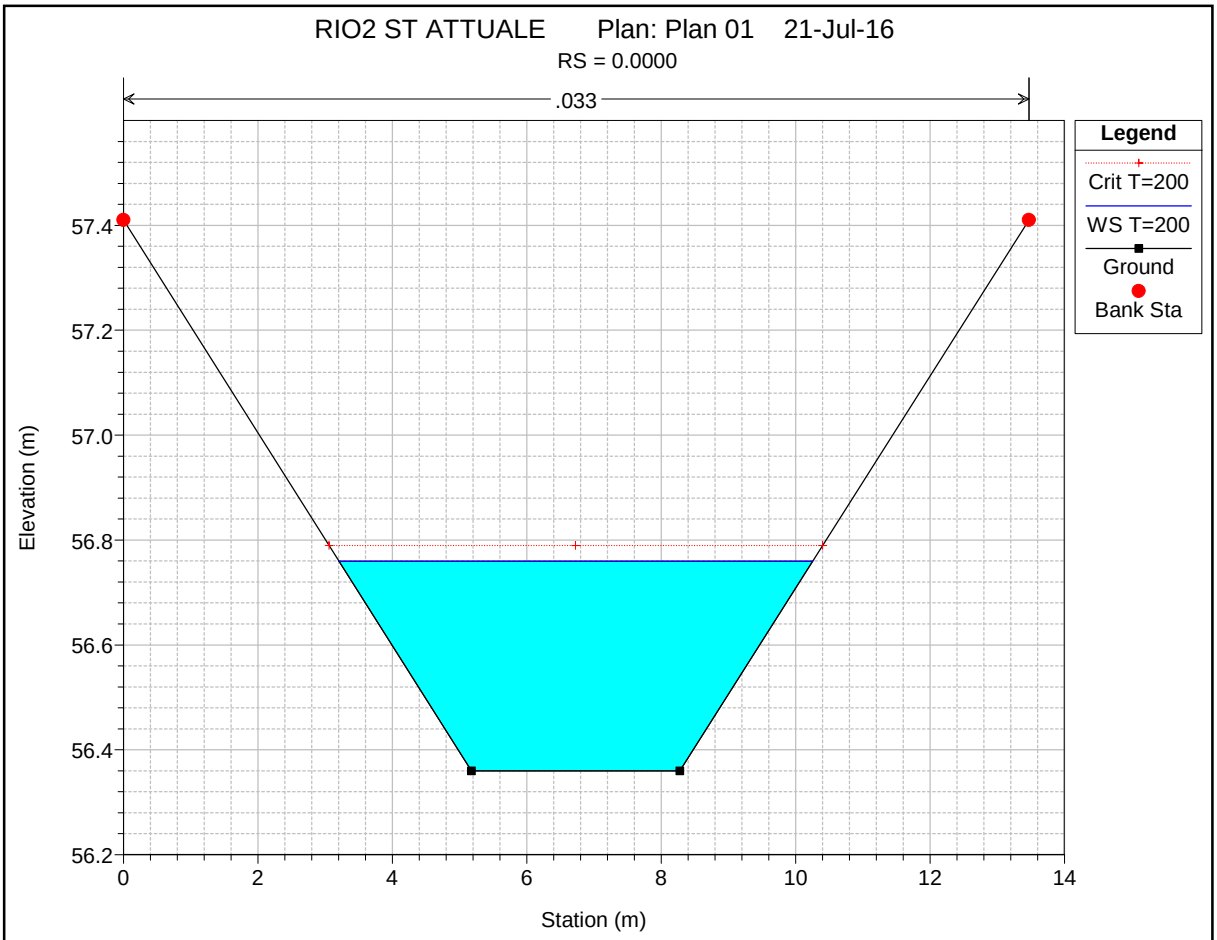

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0712
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
59.0
58.8
58.6
58.4
58.2
58.0
57.8
0
1
2
3
4
5
6
Station (m)

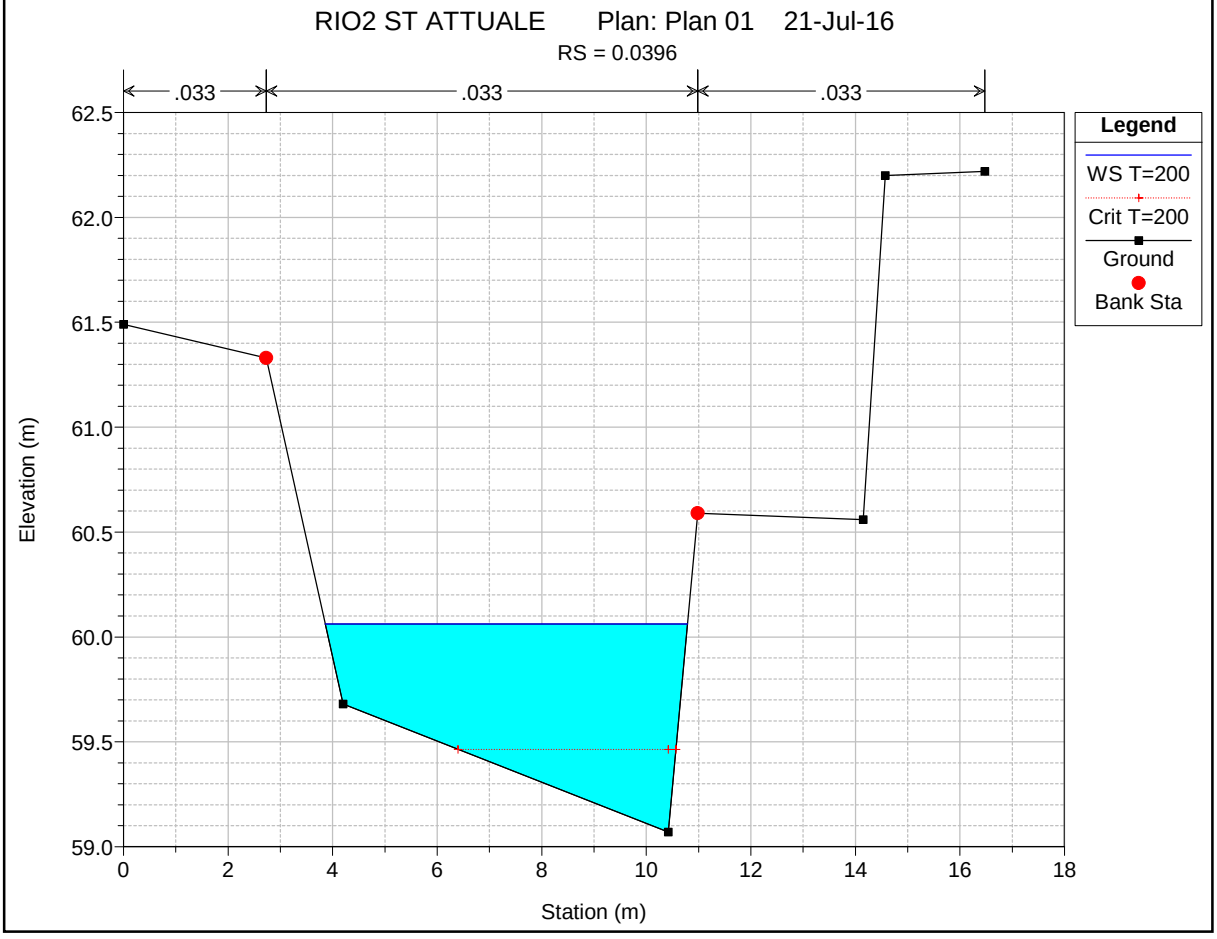

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0312
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
59.0
58.5
58.0
57.5
57.0
0
1
2
3
4
5
6
7
8

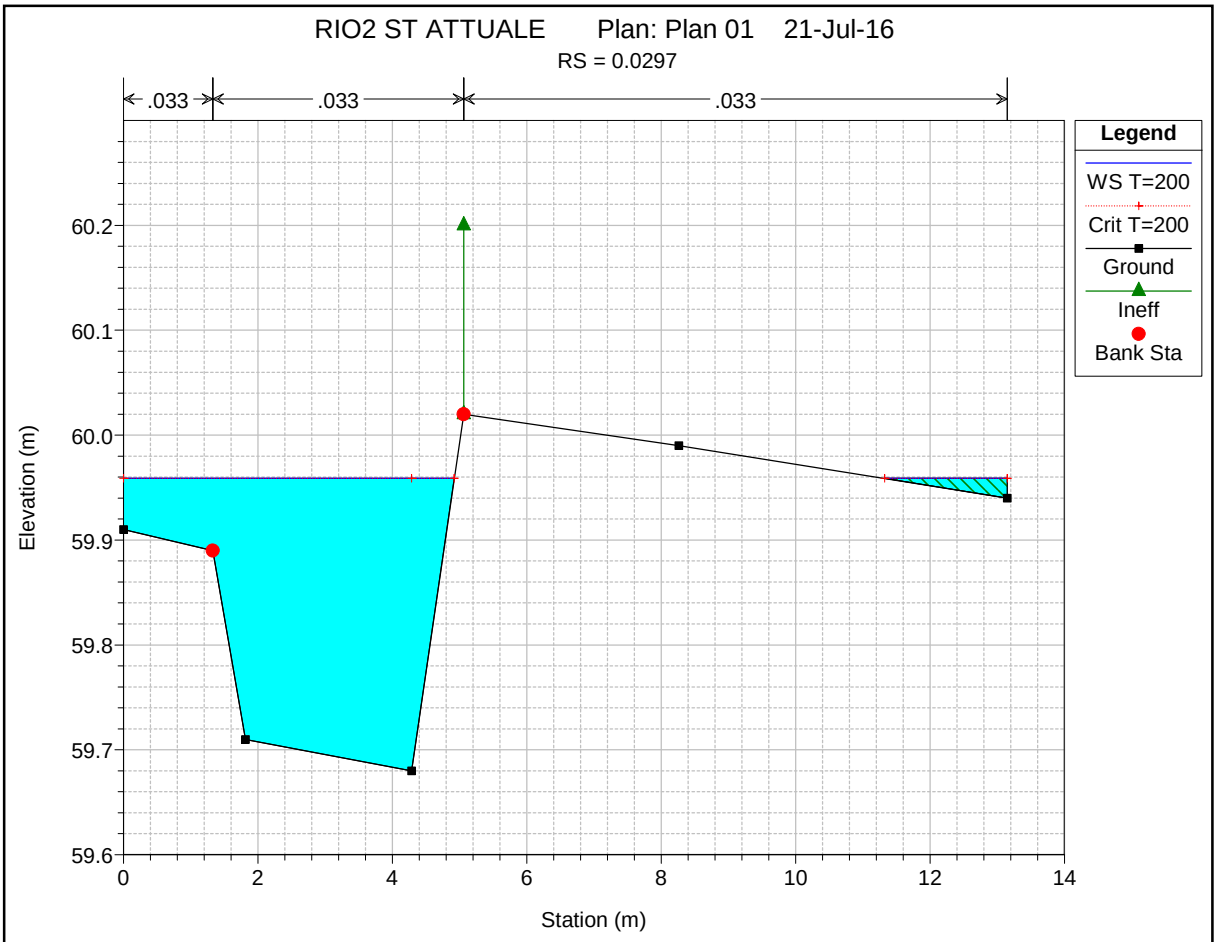

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0125
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
59.0
58.5
58.0
57.5
57.0
56.5
0
5
10
15
20

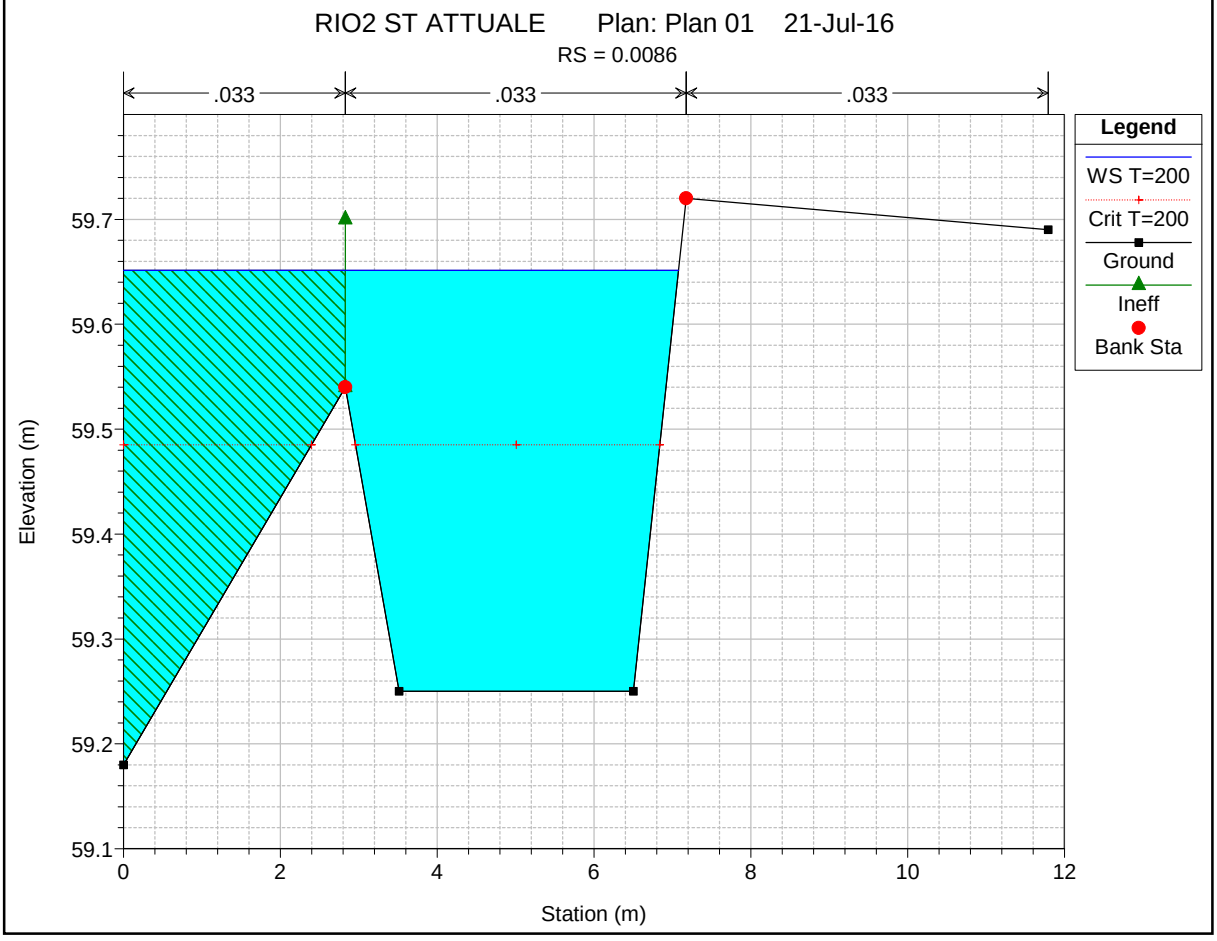

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0088
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
57.6
57.4
57.2
57.0
56.8
56.6
56.4
0
2
4
6
8
10
12
14
Station (m)

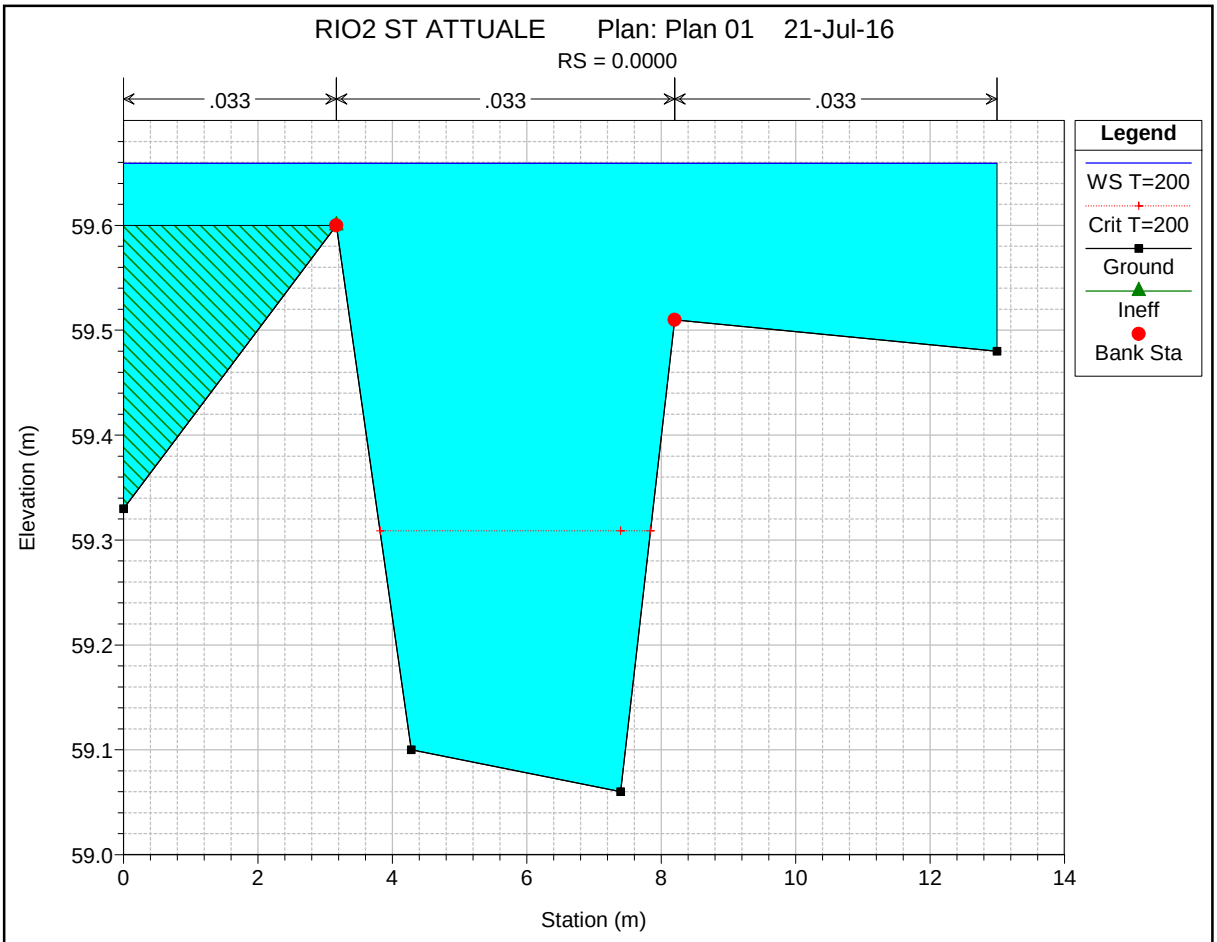

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0083
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
57.4
57.2
57.0
56.8
56.6
56.4
0
2
4
6
8
10
12
14
Station (m)


RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0000
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.4
57.2
57.0
56.8
56.6
56.4
56.2
0
2
4
6
8
10
12
14


RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0396
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
0
2
4
6
8
10
12
14
16
18


RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0297
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
60.2
60.1
60.0
59.9
59.8
59.7
59.6
0
2
4
6
8
10
12
14


RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0086
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
59.7
59.6
59.5
59.4
59.3
59.2
59.1
0
2
4
6
8
10
12


RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16
RS = 0.0000
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
59.6
59.5
59.4
59.3
59.2
59.1
59.0
0
2
4
6
8
10
12
14
Station (m)

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16

rio2 Reach 2

rio2 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

64

63

62

61

60

59

58

57

56

0.0083

0.0125

0.0312

0.0712

0.1112

0.1395

0.1486

0.1585

0.1662

0.1681

0.1700

0.1722

0.1757

0

50

100

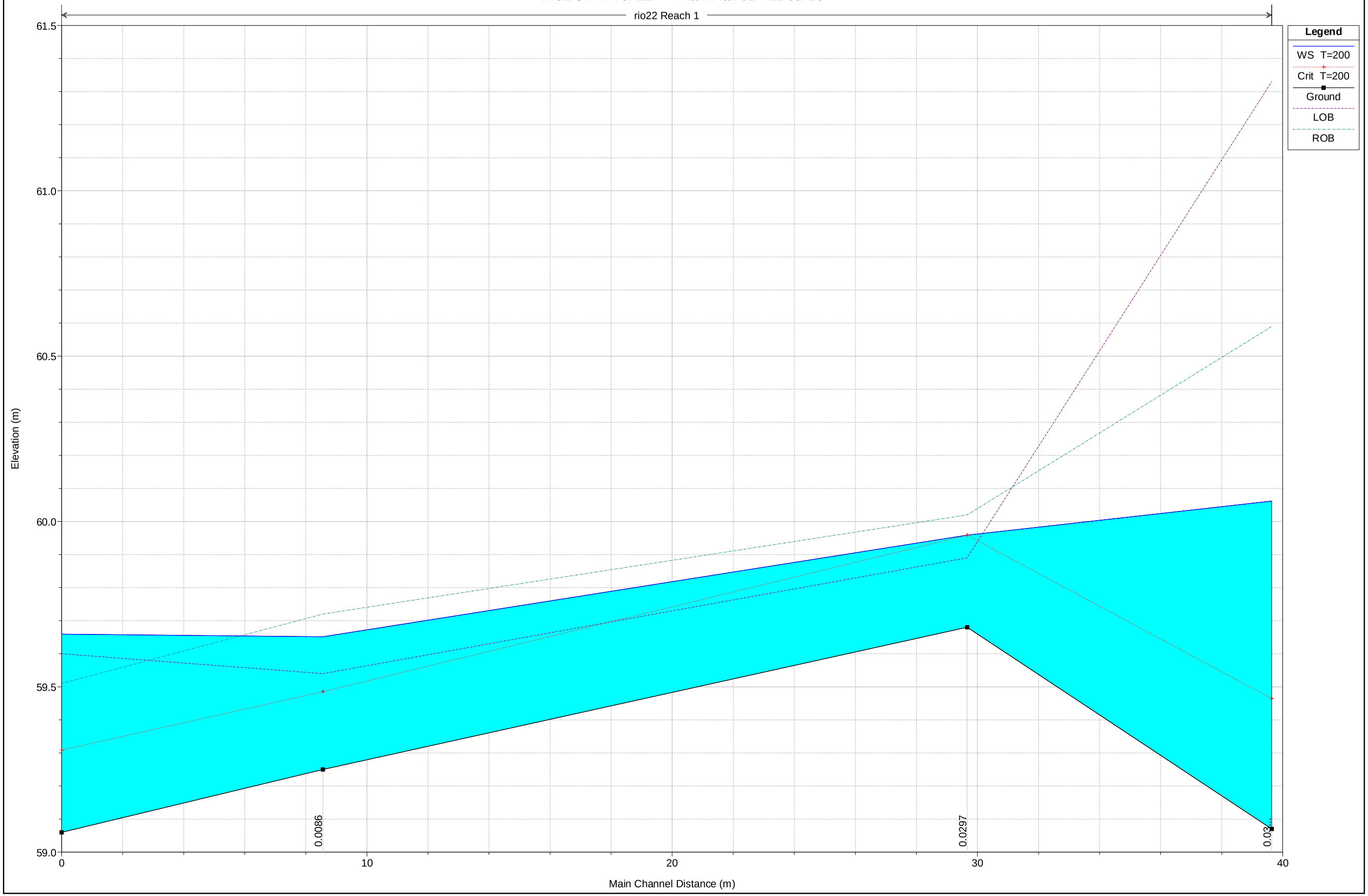
150

200

Main Channel Distance (m)

RIO2 ST ATTUALE Plan: Plan 01 21-Jul-16

rio22 Reach 1



HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio22	Reach 1	0.0396	T=200	1.16	59.07	60.06	59.46	0.26	1.27	61.33	0.53	60.59	0.00	0.10
rio22	Reach 1	0.0297	T=200	1.16	59.68	59.96	59.96	1.37	-0.07	59.89	0.06	60.02	0.09	0.92
rio22	Reach 1	0.0086	T=200	1.16	59.25	59.65	59.49	0.78	-0.11	59.54	0.07	59.72	0.03	0.42
rio22	Reach 1	0.0000	T=200	1.16	59.06	59.66	59.31	0.40	-0.06	59.60	-0.15	59.51	0.01	0.18
rio2	Reach 1	0.1757	T=200	2.12	61.84	62.12	62.49	7.42	0.94	63.06	0.99	63.11	2.80	5.48
rio2	Reach 1	0.1722	T=200	2.12	60.89	61.09	61.27	5.04	0.98	62.07	0.15	61.24	1.30	4.96
rio2	Reach 1	0.1700	T=200	2.12	58.69	61.01	59.44	0.38	0.97	61.98	-0.25	60.76	0.01	0.12
rio2	Reach 1	0.1681	T=200	2.12	60.58	60.88	60.88	1.51	0.83	61.71	-0.08	60.80	0.12	1.00
rio2	Reach 1	0.1662	T=200	2.12	60.21	60.54	60.66	2.74	0.89	61.43	0.37	60.91	0.38	1.80
rio2	Reach 1	0.1585	T=200	2.12	59.83	60.12	60.22	2.60	0.15	60.27	-0.13	59.99	0.34	1.71
rio2	Reach 1	0.1486	T=200	2.12	59.48	59.78	59.86	2.12	0.13	59.91	0.11	59.89	0.23	1.37
rio2	Reach 1	0.1395	T=200	2.12	59.21	59.78	59.62	1.04	-0.09	59.69	-0.09	59.69	0.05	0.50
rio2	Reach 2	0.1112	T=200	3.90	58.64	59.34	59.34	2.12	-0.03	59.31	0.11	59.45	0.23	1.01
rio2	Reach 2	0.0712	T=200	3.90	57.85	58.48	58.52	2.31	0.46	58.94	0.62	59.10	0.27	1.17
rio2	Reach 2	0.0312	T=200	3.90	57.05	57.74	57.74	2.13	1.01	58.75	1.19	58.93	0.23	1.01
rio2	Reach 2	0.0125	T=200	3.90	56.63	57.26	57.31	2.42	0.93	58.19	1.13	58.39	0.30	1.19
rio2	Reach 2	0.0088	T=200	3.90	56.57	57.05	57.14	2.78	0.57	57.62	0.57	57.62	0.39	1.32
rio2	Reach 2	0.0083	T=200	3.90	56.56	56.83	56.99	3.35	0.76	57.59	0.76	57.59	0.57	2.36
rio2	Reach 2	0.0000	T=200	3.90	56.36	56.76	56.79	1.92	0.65	57.41	0.65	57.41	0.19	1.14

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
				(m)	(m)	(m3/s)
rio2	Reach 1	0.1395	T=200	59.78	59.83	2.12
rio22	Reach 1	0.0000	T=200	59.66	59.67	1.16
Junction:	2					
rio2	Reach 2	0.1112	T=200	59.34	59.57	3.90

VERIFICA IDRAULICA

RIO 2

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

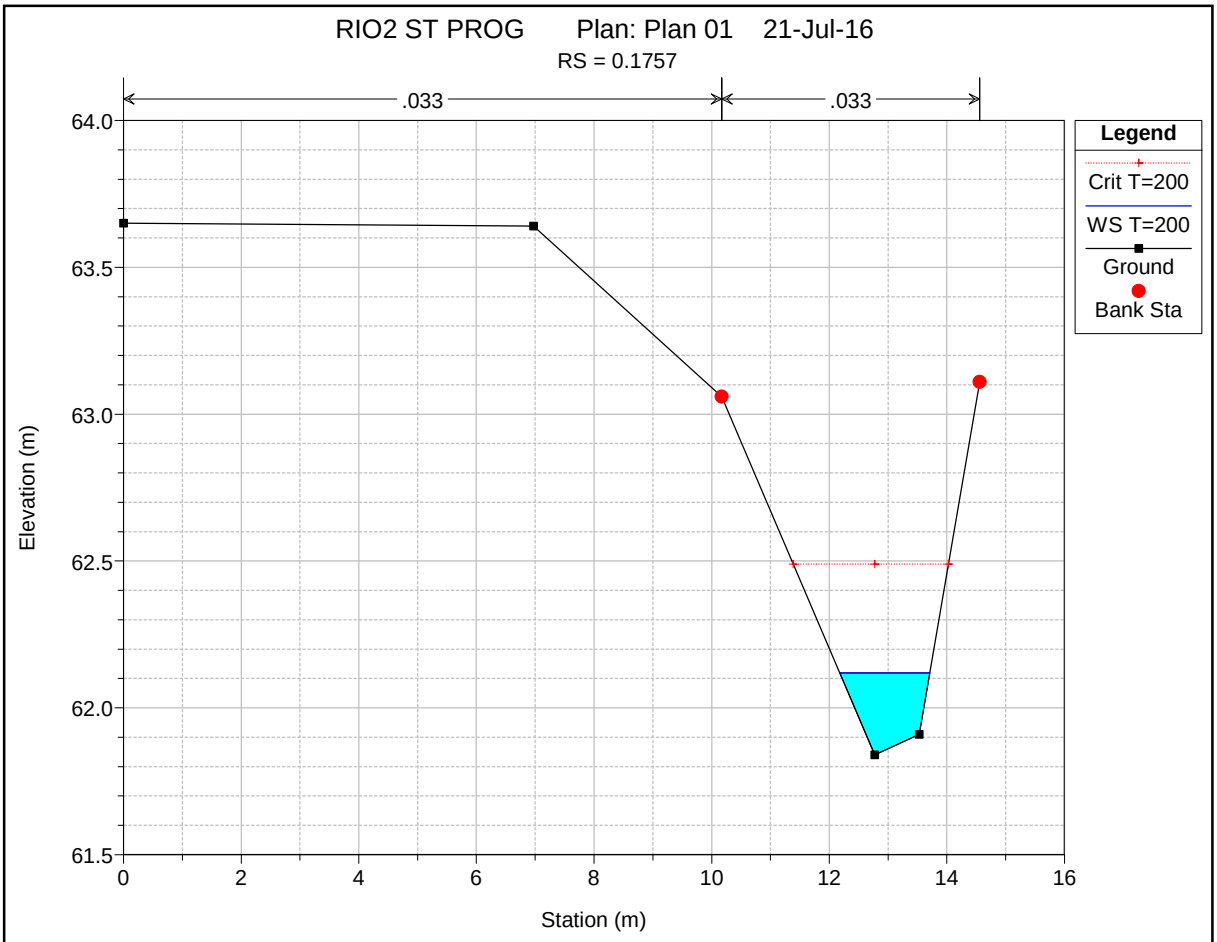
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

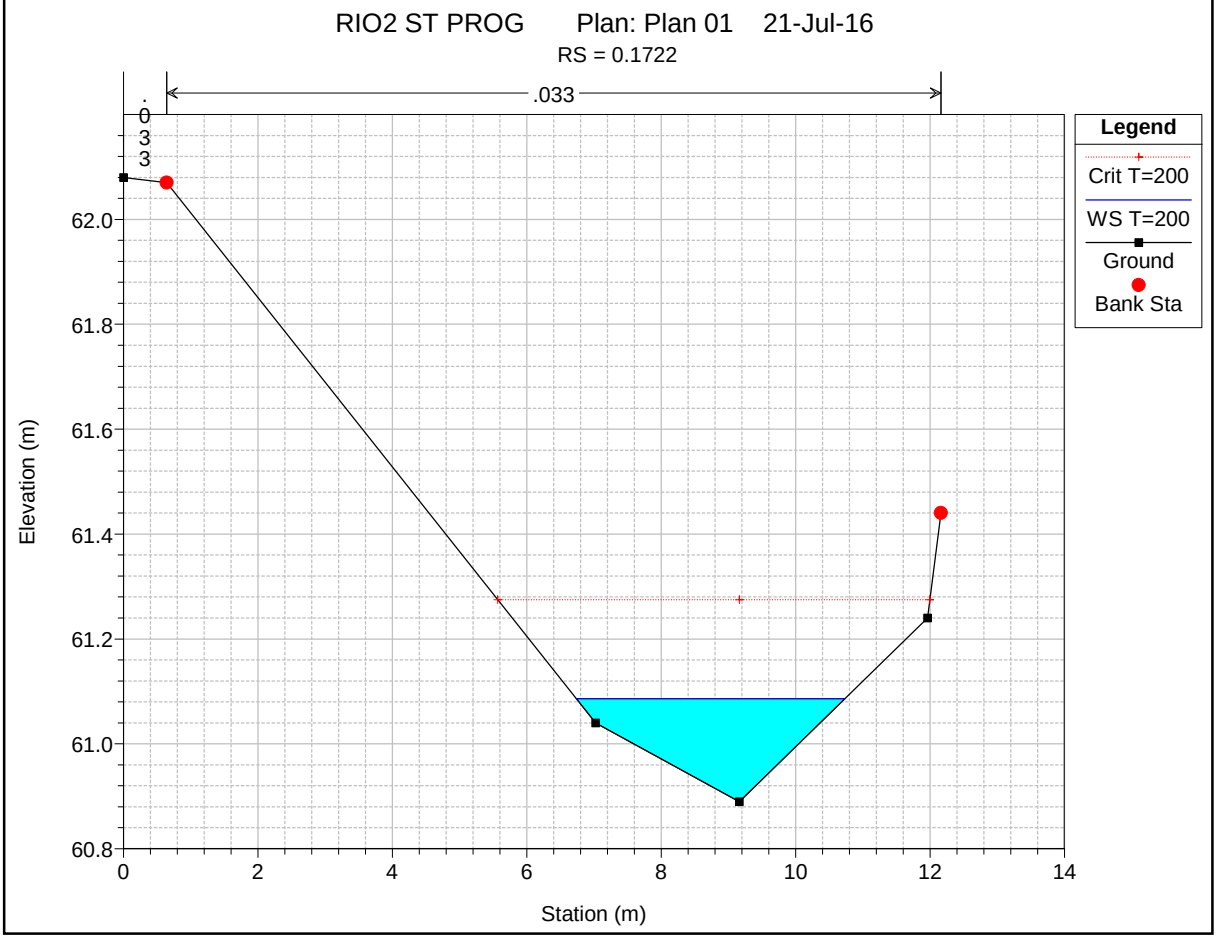
Vel Chnl = Velocità della corrente nel canale.

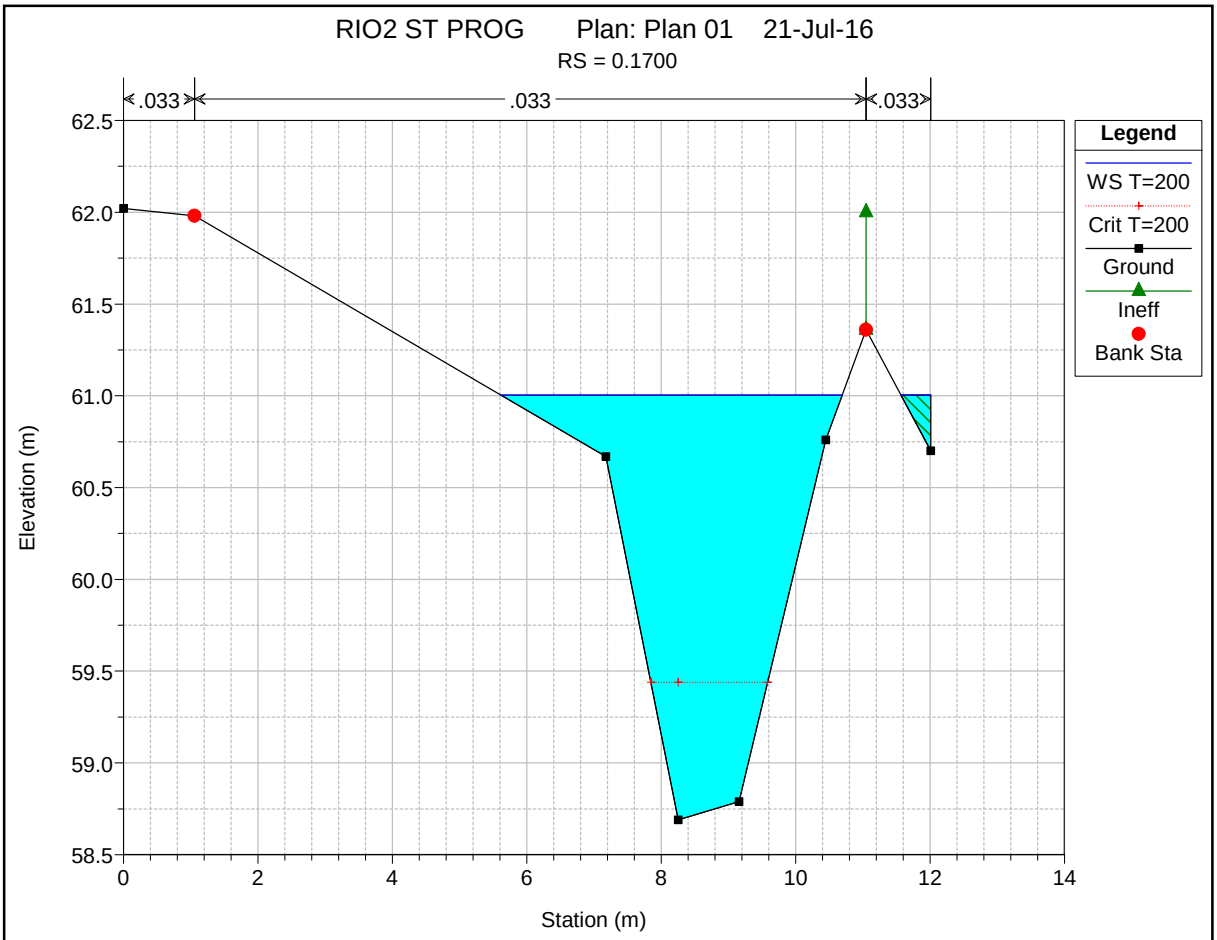
Froude = n° di froude della corrente.

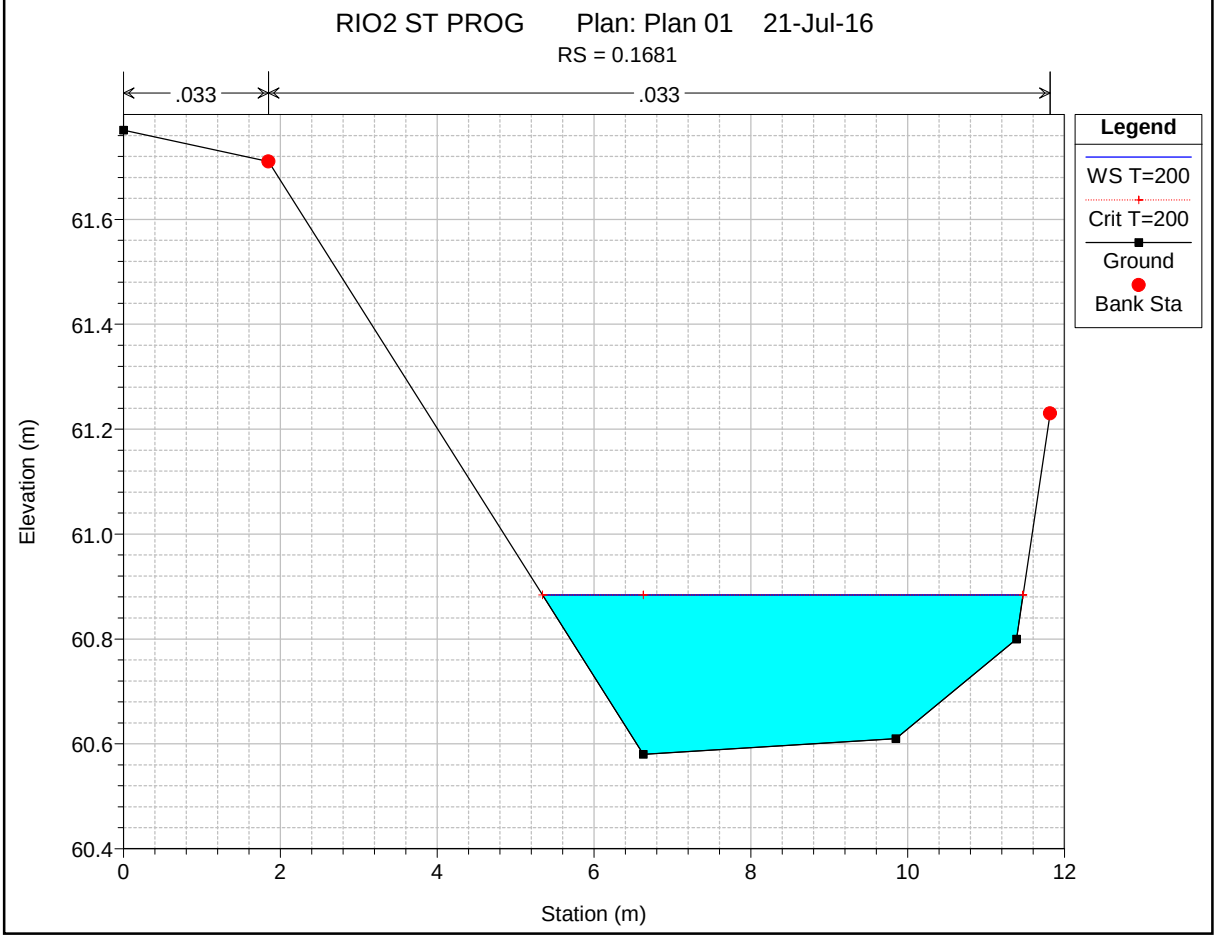
Vel. Head = $U^2/2g$.

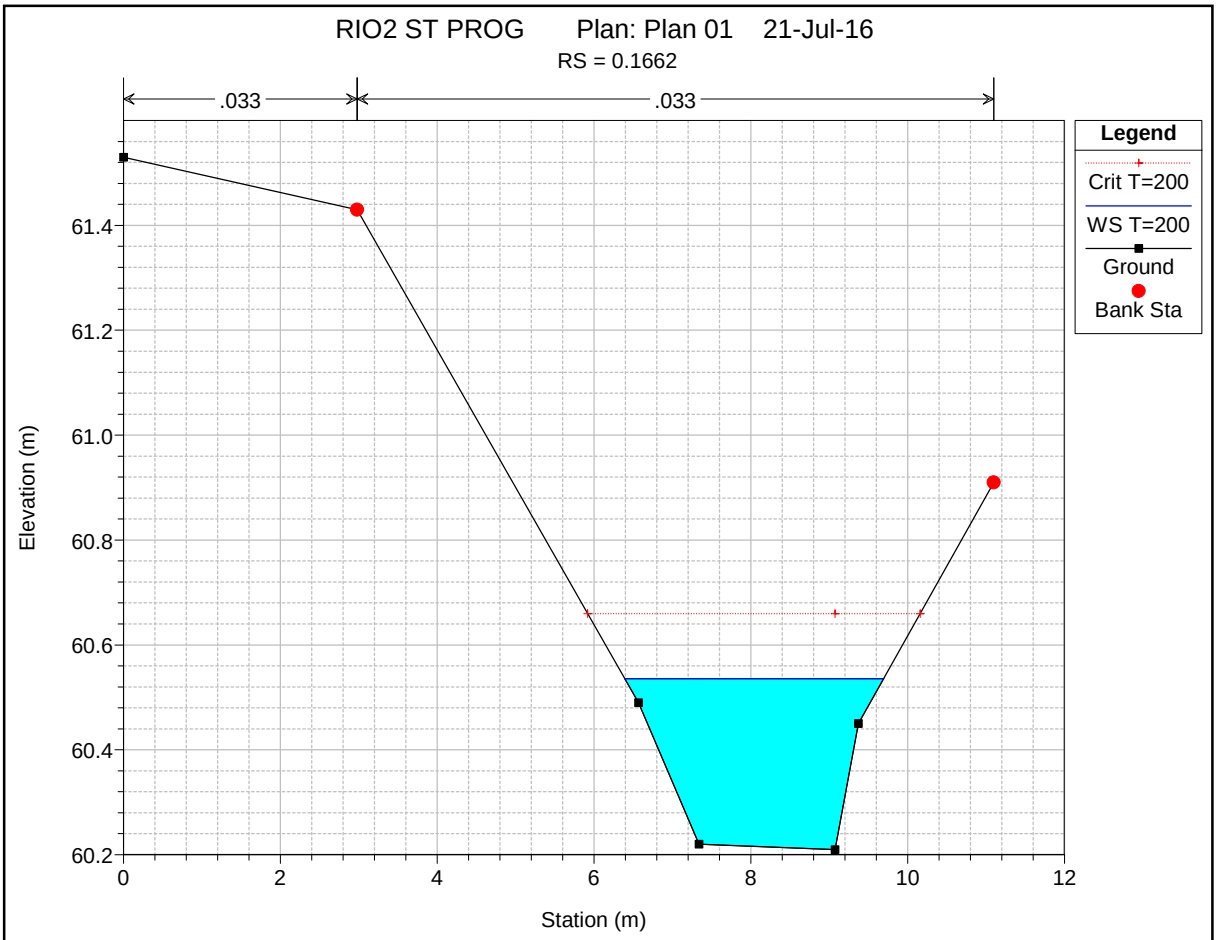
STATO di PROGETTO

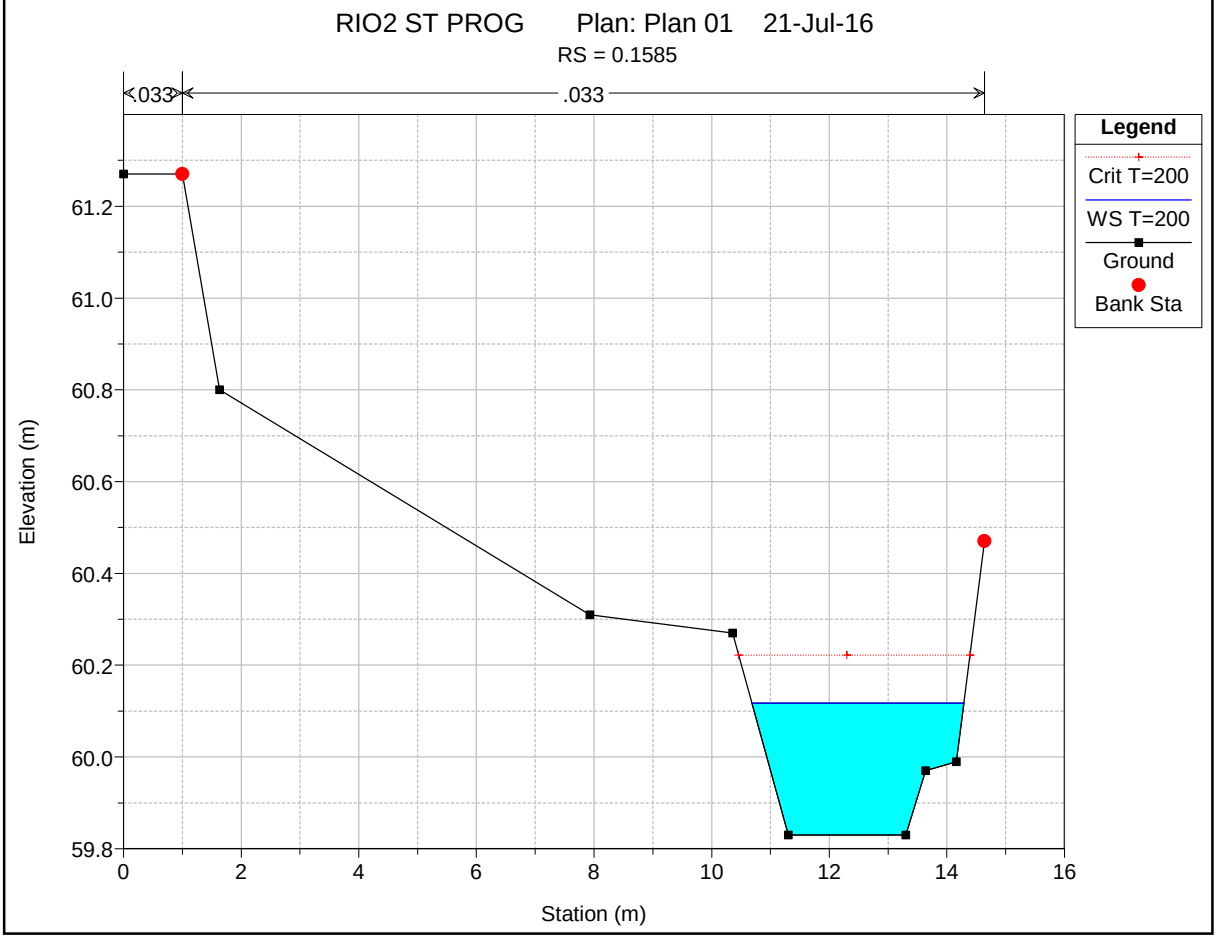

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1757
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
64.0
63.5
63.0
62.5
62.0
61.5
0
2
4
6
8
10
12
14
16

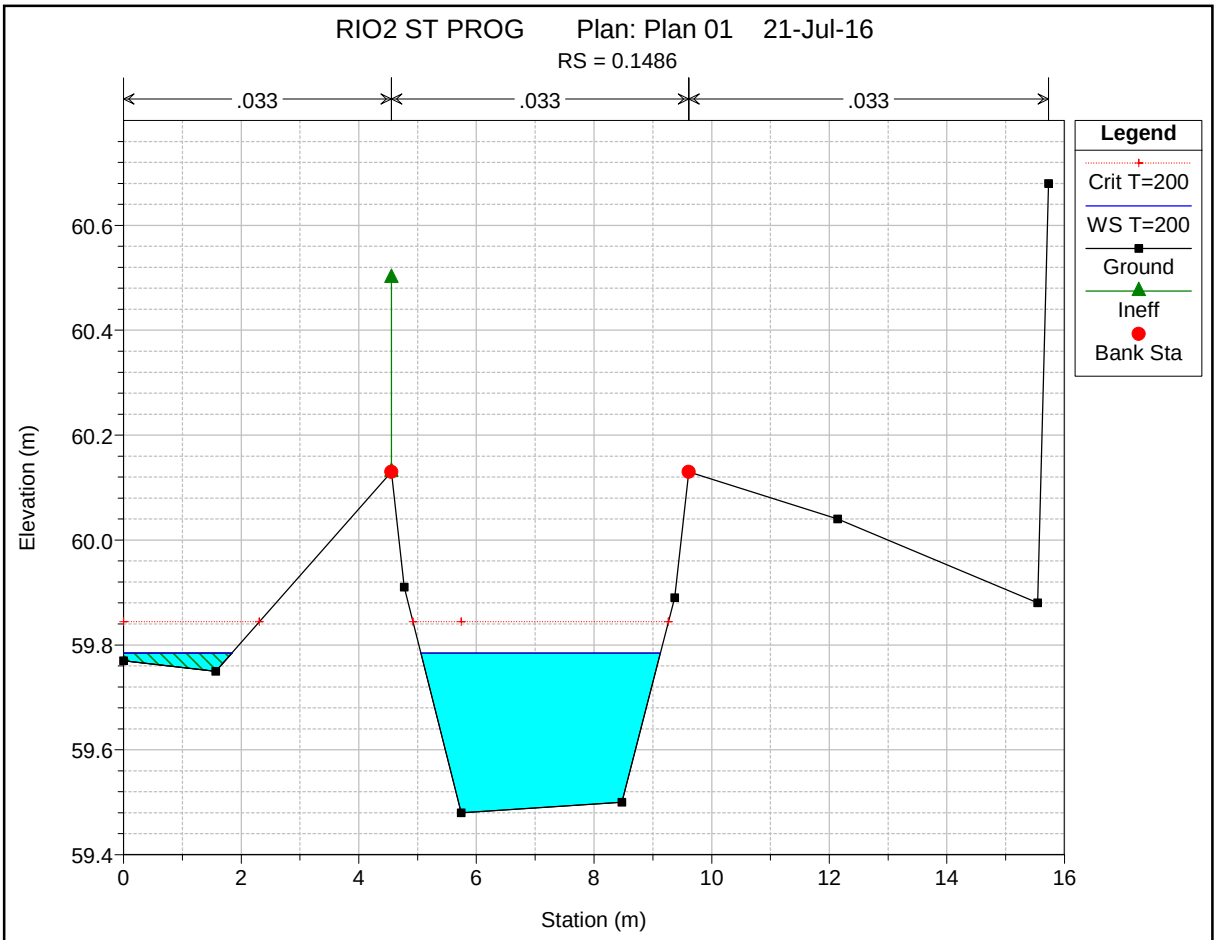

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1722
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.0
61.8
61.6
61.4
61.2
61.0
60.8
0
2
4
6
8
10
12
14

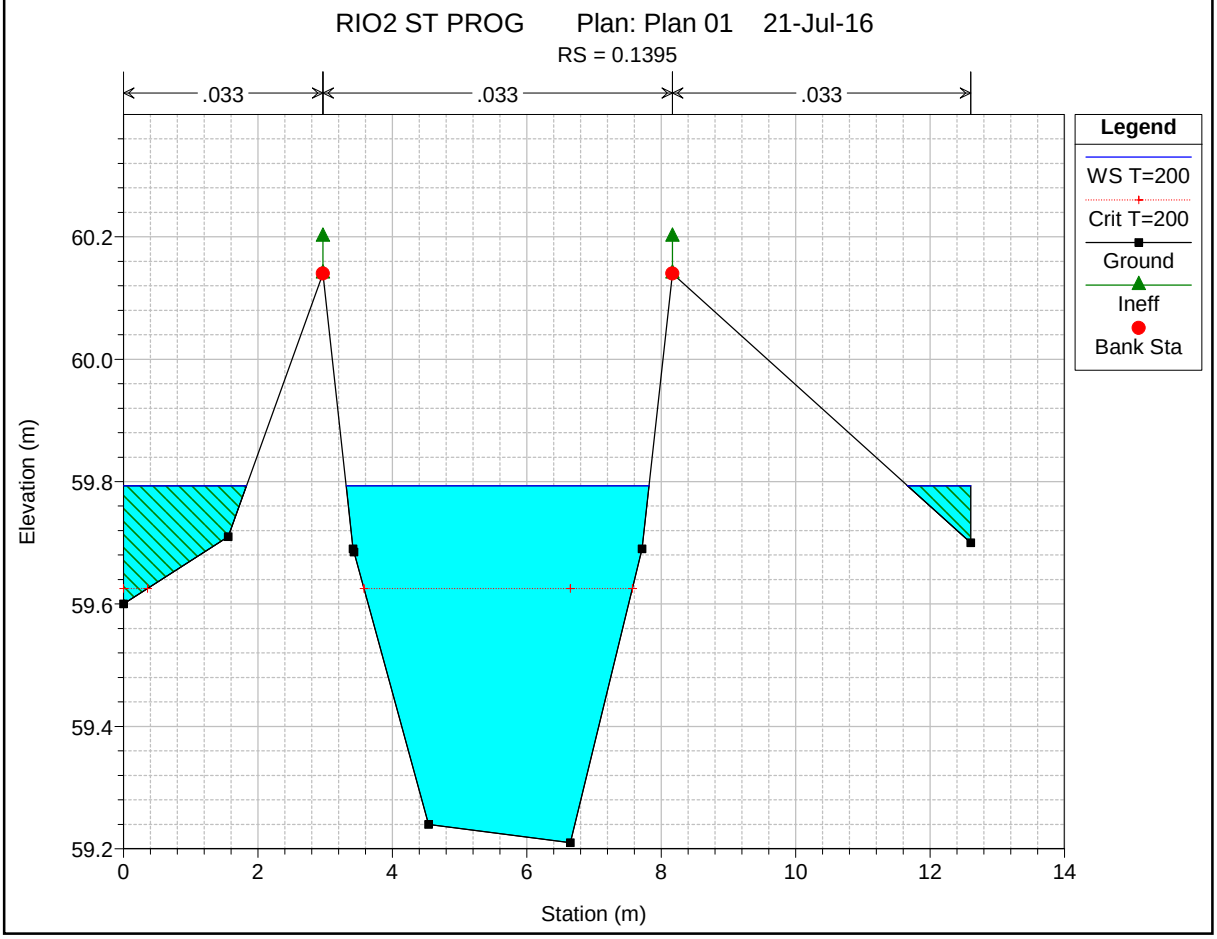

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1700
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
58.5
0
2
4
6
8
10
12
14

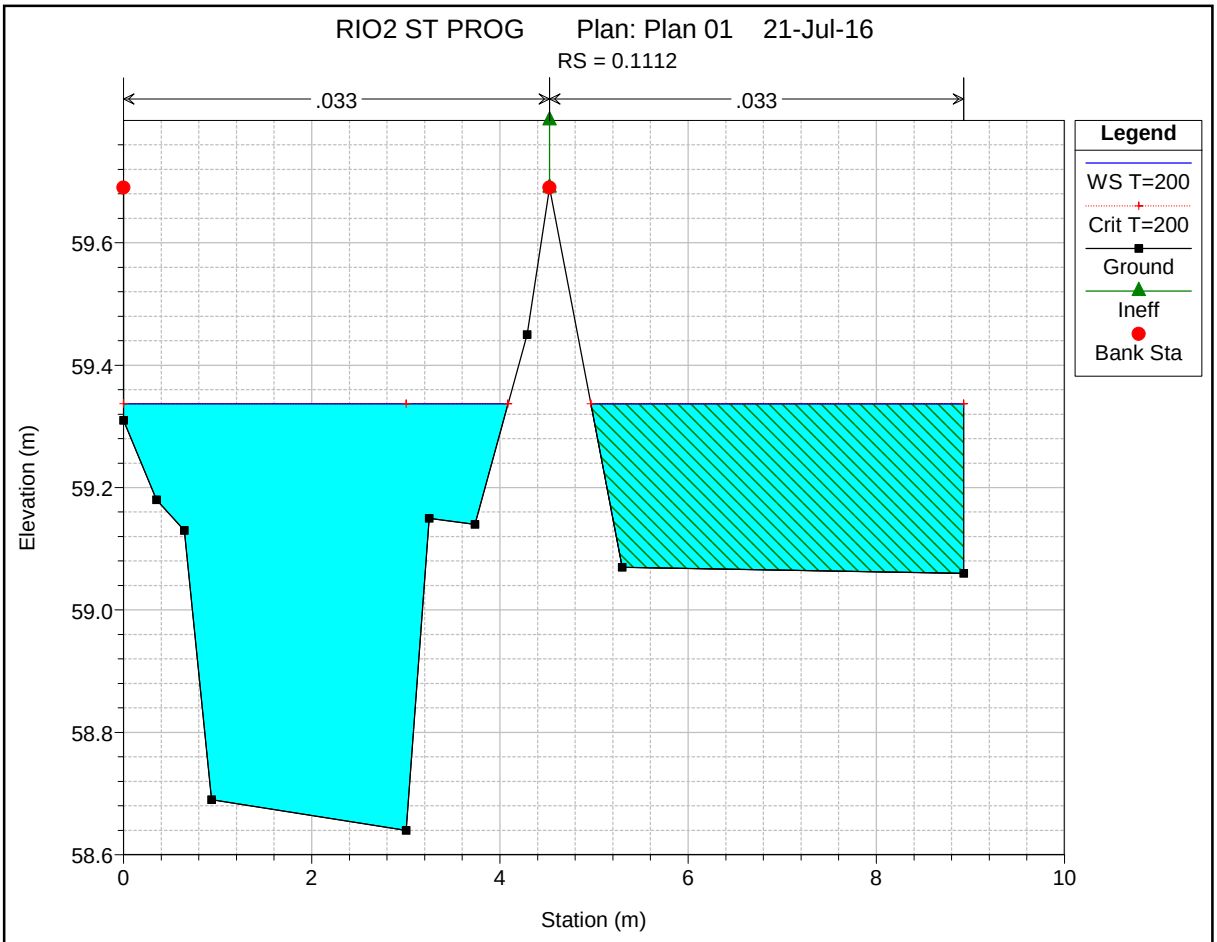

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1681
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
61.6
61.4
61.2
61.0
60.8
60.6
60.4
0
2
4
6
8
10
12

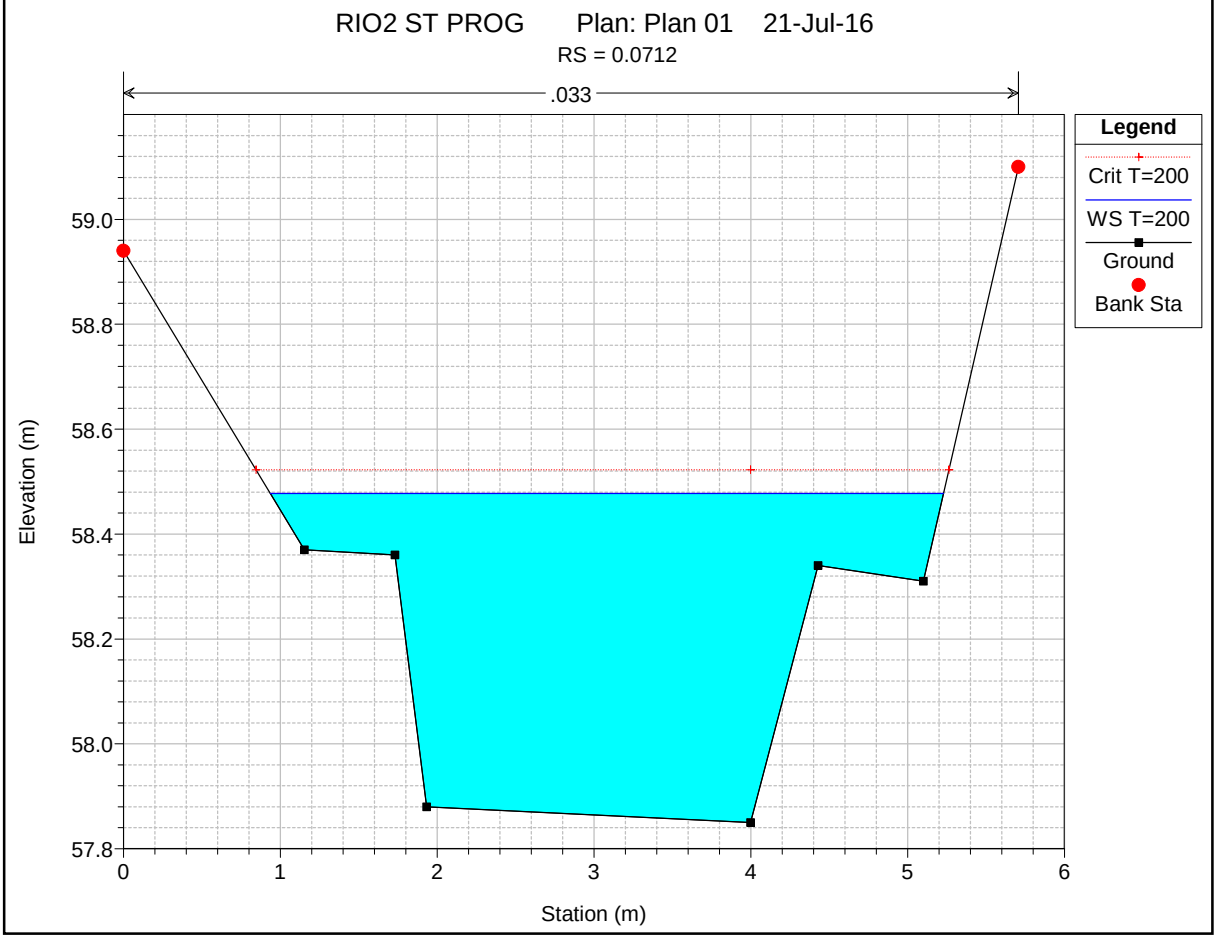

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1662
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
61.4
61.2
61.0
60.8
60.6
60.4
60.2
0
2
4
6
8
10
12
Station (m)

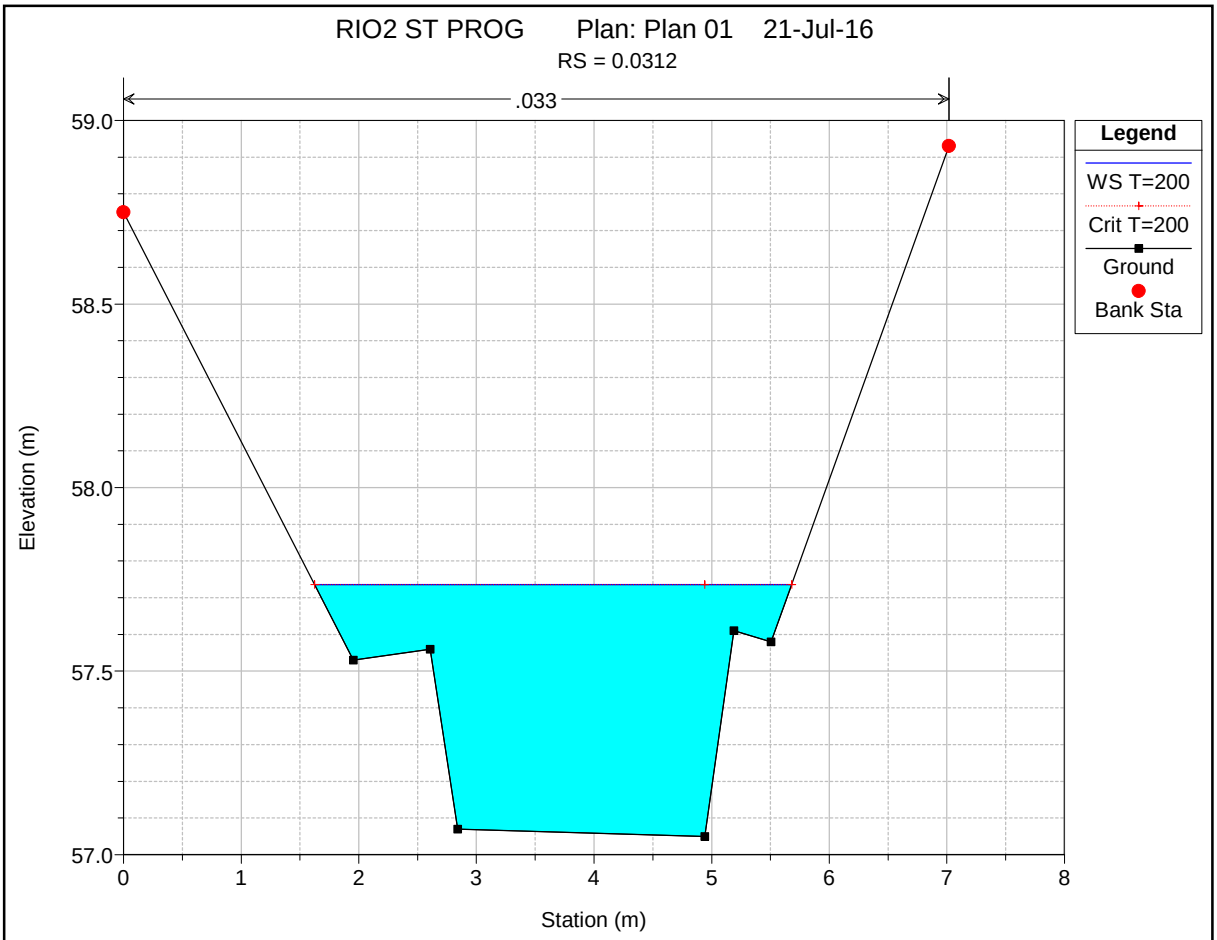

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1585
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
61.2
61.0
60.8
60.6
60.4
60.2
60.0
59.8
0
2
4
6
8
10
12
14
16
Station (m)

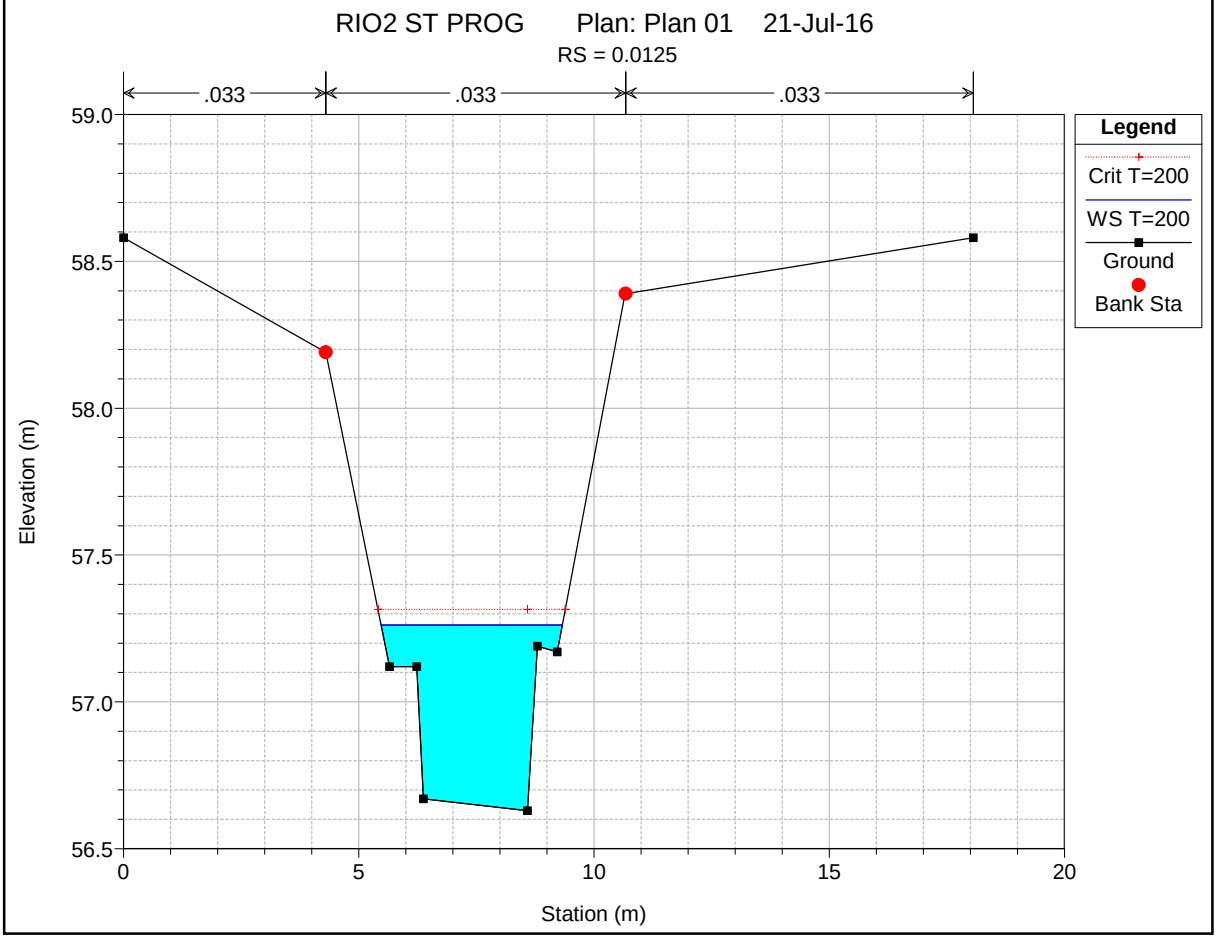

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1486
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Ineff
Bank Sta
Elevation (m)
60.6
60.4
60.2
60.0
59.8
59.6
59.4
0
2
4
6
8
10
12
14
16
Station (m)

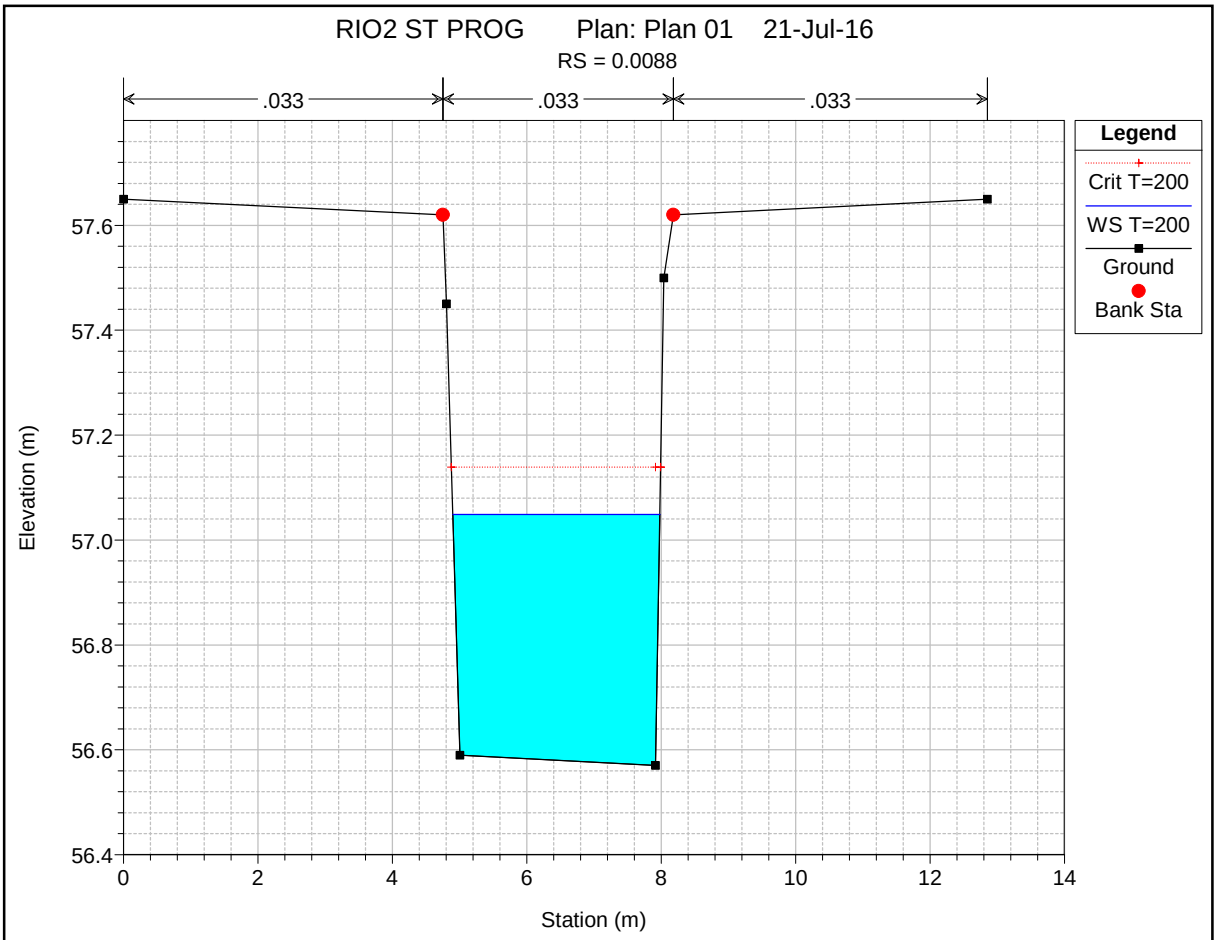

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1395
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
60.2
60.0
59.8
59.6
59.4
59.2
0
2
4
6
8
10
12
14
Station (m)

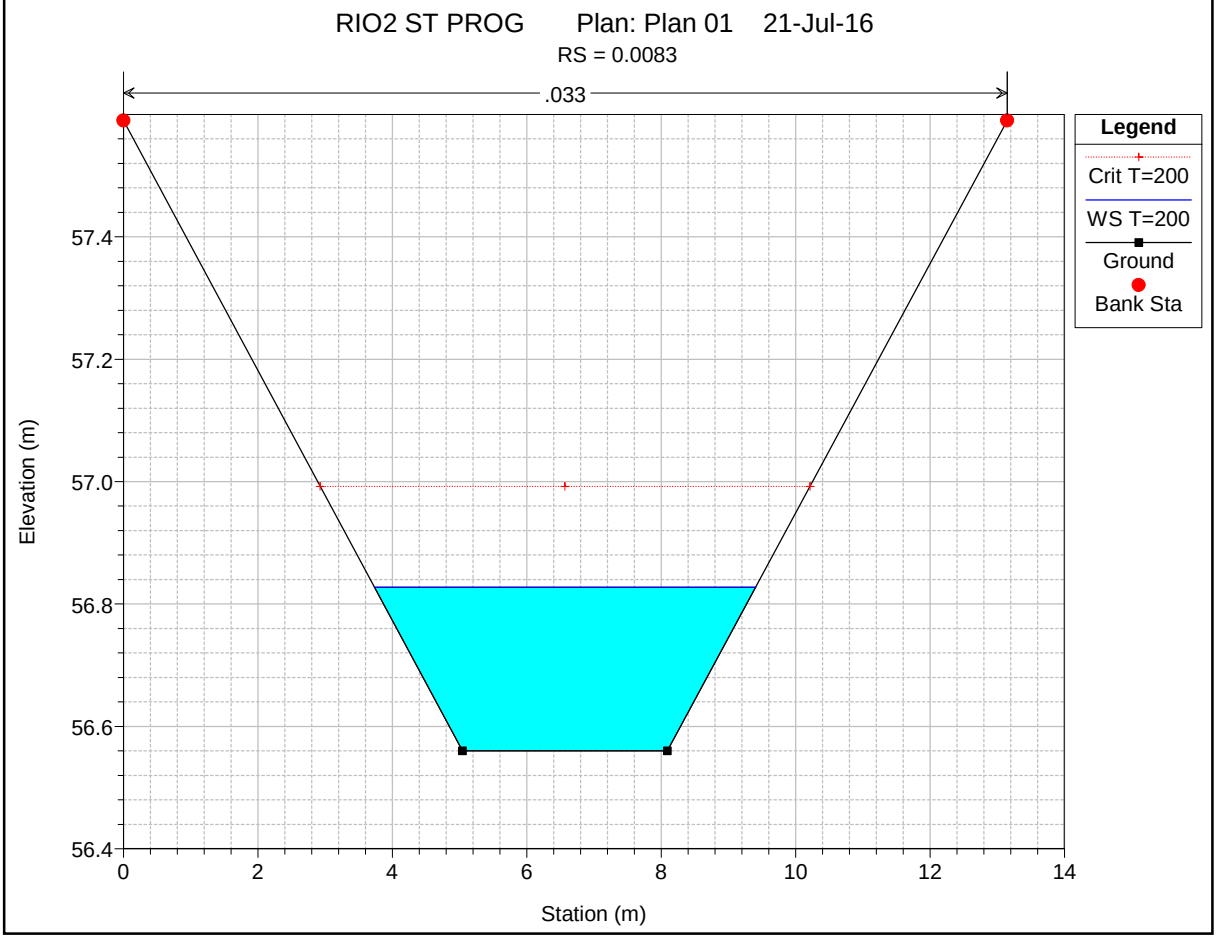

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.1112
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
59.6
59.4
59.2
59.0
58.8
58.6
0
2
4
6
8
10
Station (m)

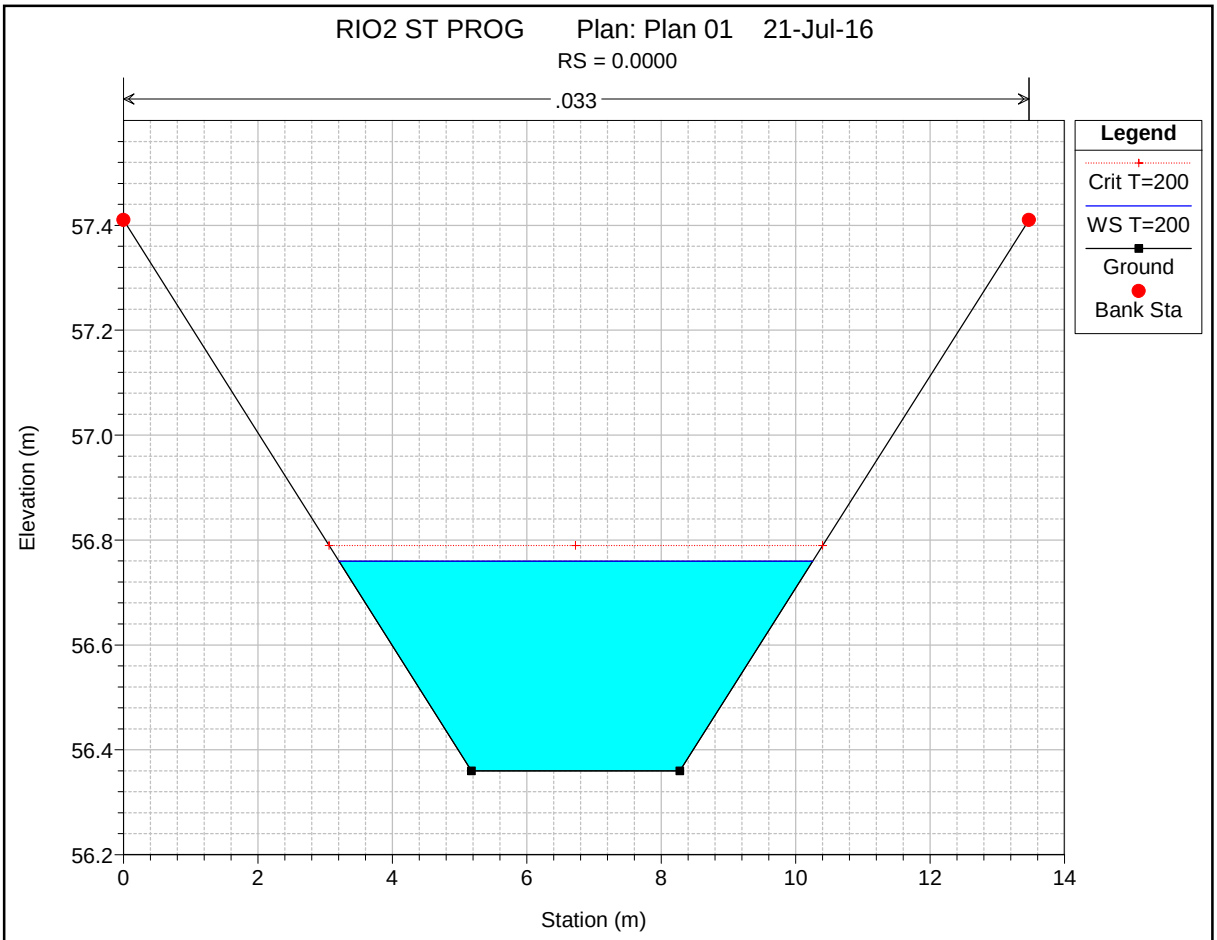

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0712
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
59.0
58.8
58.6
58.4
58.2
58.0
57.8
0
1
2
3
4
5
6
Station (m)

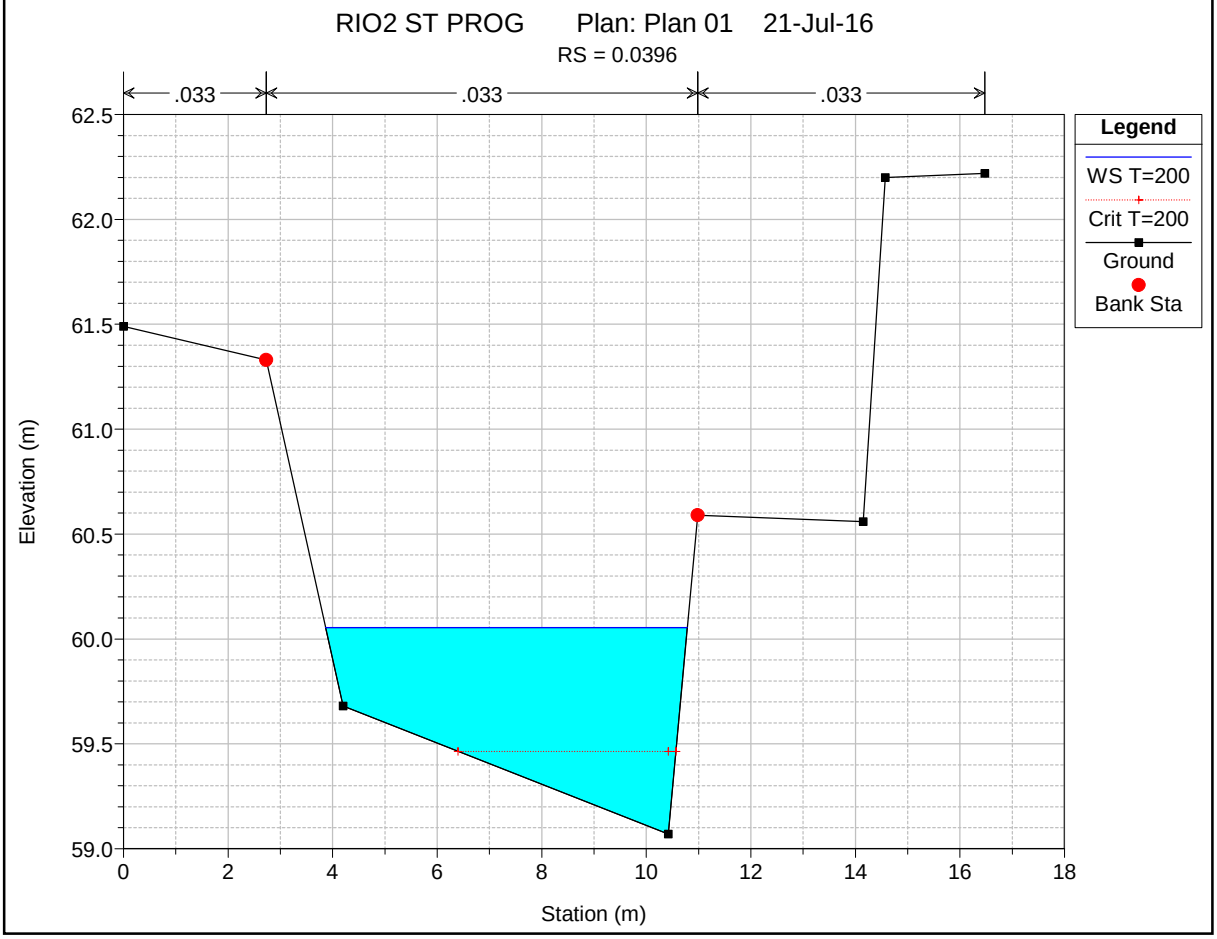

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0312
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
59.0
58.5
58.0
57.5
57.0
0
1
2
3
4
5
6
7
8

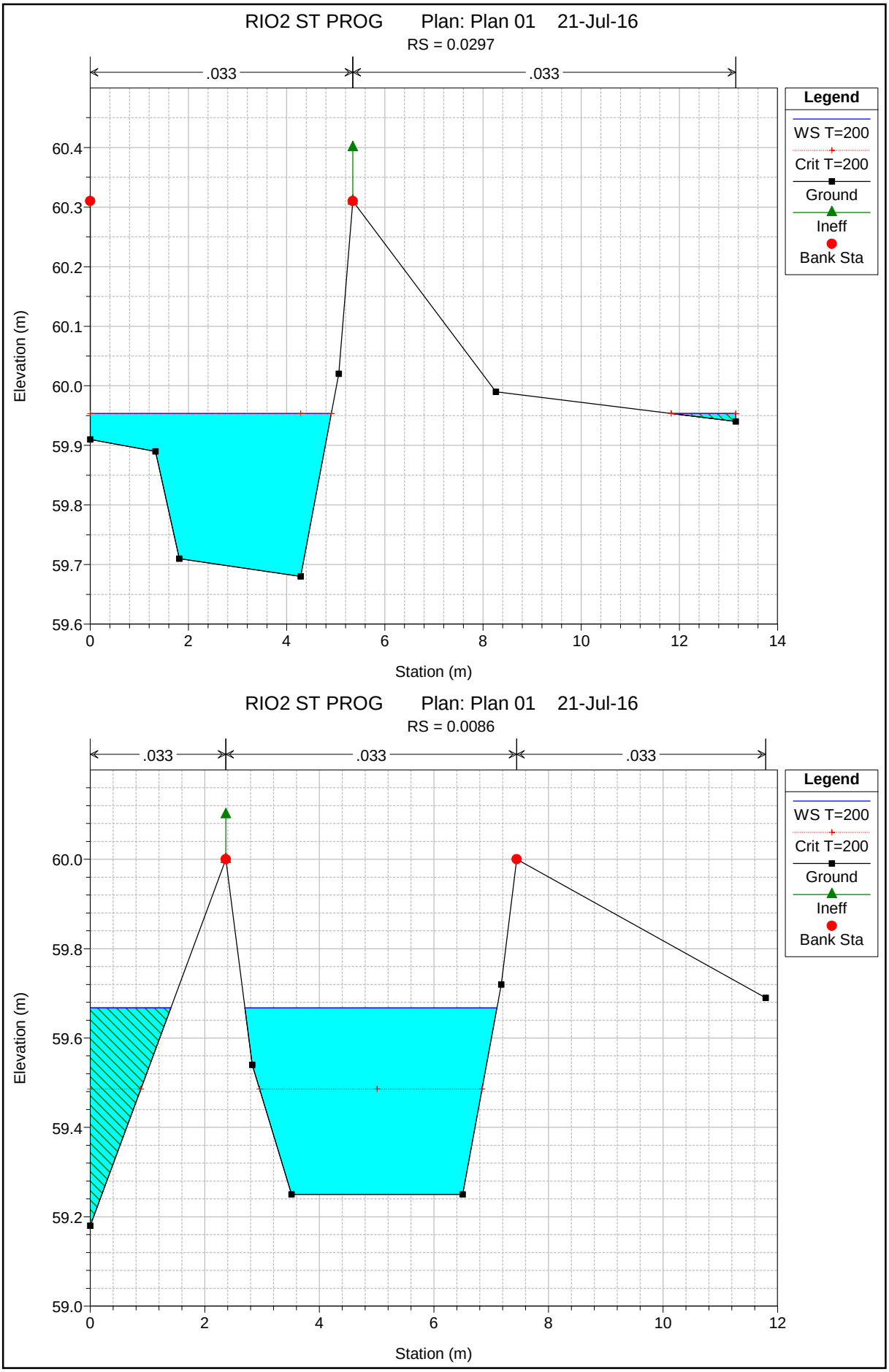

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0125
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
59.0
58.5
58.0
57.5
57.0
56.5
0
5
10
15
20

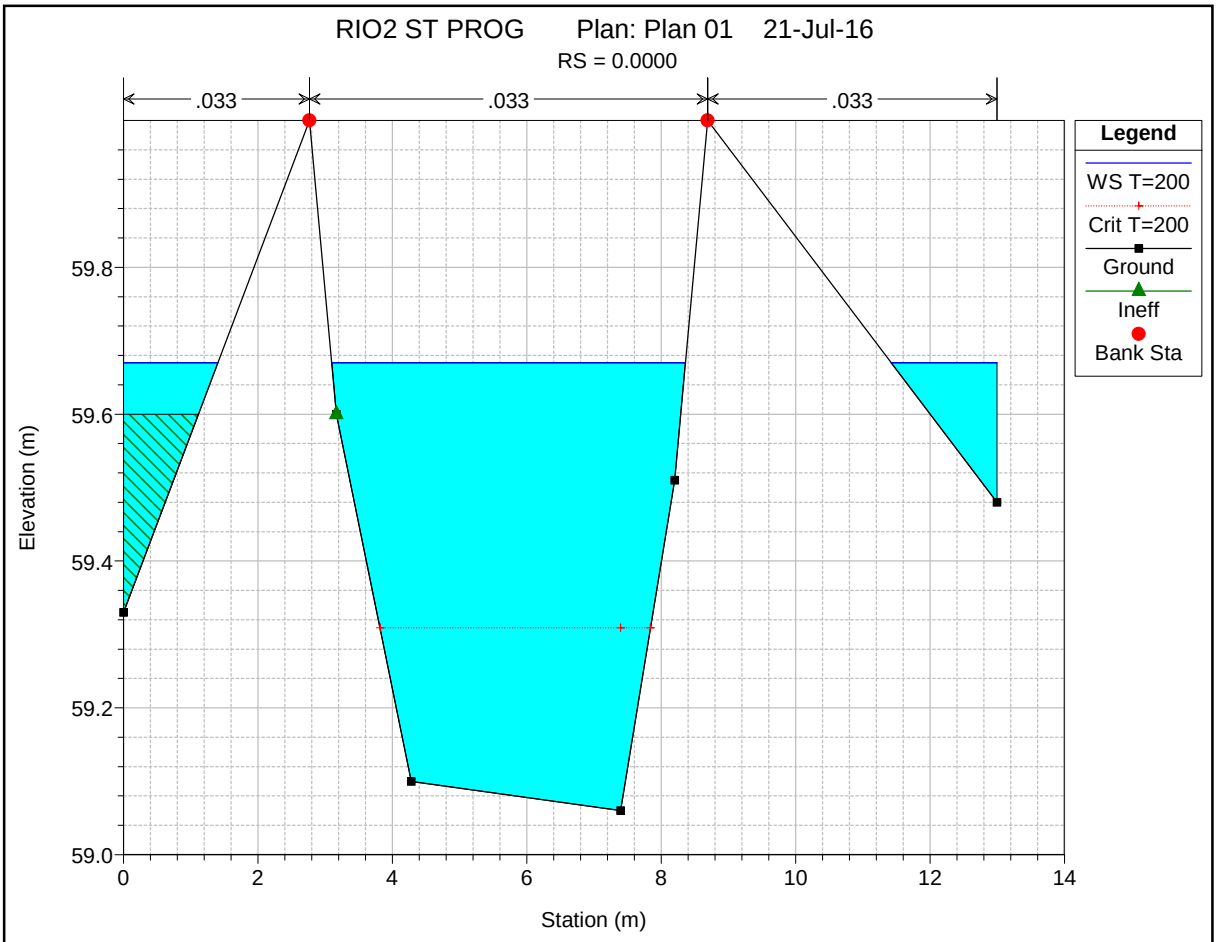

RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0088
.033
.033
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.6
57.4
57.2
57.0
56.8
56.6
56.4
0
2
4
6
8
10
12
14


RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0083
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.4
57.2
57.0
56.8
56.6
56.4
0
2
4
6
8
10
12
14


RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0000
.033
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.4
57.2
57.0
56.8
56.6
56.4
56.2
0
2
4
6
8
10
12
14


RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0396
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
0
2
4
6
8
10
12
14
16
18


RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0297
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0086
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)


RIO2 ST PROG Plan: Plan 01 21-Jul-16
RS = 0.0000
.033
.033
.033
Legend
WS T=200
Crit T=200
Ground
Ineff
Bank Sta
Elevation (m)
59.8
59.6
59.4
59.2
59.0
0
2
4
6
8
10
12
14
Station (m)

RIO2 ST PROG Plan: Plan 01 21-Jul-16

rio2 Reach 2

rio2 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

64

63

62

61

60

59

58

57

56

0.0083

0.0125

0.0312

0.0712

0.1112

0.1395

0.1486

0.1585

0.1662

0.1681

0.1700

0.1722

0.1757

0

50

100

150

200

Main Channel Distance (m)

RIO2 ST PROG Plan: Plan 01 21-Jul-16

rio22 Reach 1

Legend

WS T=200

Crit T=200

Ground

LOB

ROB

Elevation (m)

61.5

61.0

60.5

60.0

59.5

59.0

0.0086

0.0297

0.03...

0

10

20

30

40

Main Channel Distance (m)

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio22	Reach 1	0.0396	T=200	1.16	59.07	60.05	59.46	0.26	1.28	61.33	0.54	60.59	0.00	0.10
rio22	Reach 1	0.0297	T=200	1.16	59.68	59.95	59.95	1.33	0.36	60.31	0.36	60.31	0.09	1.01
rio22	Reach 1	0.0086	T=200	1.16	59.25	59.67	59.49	0.74	0.33	60.00	0.33	60.00	0.03	0.40
rio22	Reach 1	0.0000	T=200	1.16	59.06	59.67	59.31	0.45	0.33	60.00	0.33	60.00	0.01	0.21
rio2	Reach 1	0.1757	T=200	2.12	61.84	62.12	62.49	7.42	0.94	63.06	0.99	63.11	2.80	5.48
rio2	Reach 1	0.1722	T=200	2.12	60.89	61.09	61.28	5.04	0.98	62.07	0.35	61.44	1.30	4.96
rio2	Reach 1	0.1700	T=200	2.12	58.69	61.00	59.44	0.40	0.98	61.98	0.36	61.36	0.01	0.12
rio2	Reach 1	0.1681	T=200	2.12	60.58	60.88	60.88	1.51	0.83	61.71	0.35	61.23	0.12	1.01
rio2	Reach 1	0.1662	T=200	2.12	60.21	60.54	60.66	2.73	0.89	61.43	0.37	60.91	0.38	1.80
rio2	Reach 1	0.1585	T=200	2.12	59.83	60.12	60.22	2.59	1.15	61.27	0.35	60.47	0.34	1.74
rio2	Reach 1	0.1486	T=200	2.12	59.48	59.78	59.84	2.11	0.35	60.13	0.35	60.13	0.23	1.36
rio2	Reach 1	0.1395	T=200	2.12	59.21	59.79	59.63	1.09	0.35	60.14	0.35	60.14	0.06	0.53
rio2	Reach 2	0.1112	T=200	3.90	58.64	59.34	59.34	2.12	0.35	59.69	0.35	59.69	0.23	1.01
rio2	Reach 2	0.0712	T=200	3.90	57.85	58.48	58.52	2.31	0.46	58.94	0.62	59.10	0.27	1.17
rio2	Reach 2	0.0312	T=200	3.90	57.05	57.74	57.74	2.13	1.01	58.75	1.19	58.93	0.23	1.01
rio2	Reach 2	0.0125	T=200	3.90	56.63	57.26	57.31	2.42	0.93	58.19	1.13	58.39	0.30	1.19
rio2	Reach 2	0.0088	T=200	3.90	56.57	57.05	57.14	2.78	0.57	57.62	0.57	57.62	0.39	1.32
rio2	Reach 2	0.0083	T=200	3.90	56.56	56.83	56.99	3.35	0.76	57.59	0.76	57.59	0.57	2.36
rio2	Reach 2	0.0000	T=200	3.90	56.36	56.76	56.79	1.92	0.65	57.41	0.65	57.41	0.19	1.14

HEC-RAS Plan: Plan 01 Profile: T=200

Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
			(m)	(m)	(m3/s)
Reach 1	0.1395	T=200	59.79	59.85	2.12
Reach 1	0.0000	T=200	59.67	59.68	1.16
Junction:	2				
Reach 2	0.1112	T=200	59.34	59.57	3.90

VERIFICA IDRAULICA

RIO 3

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

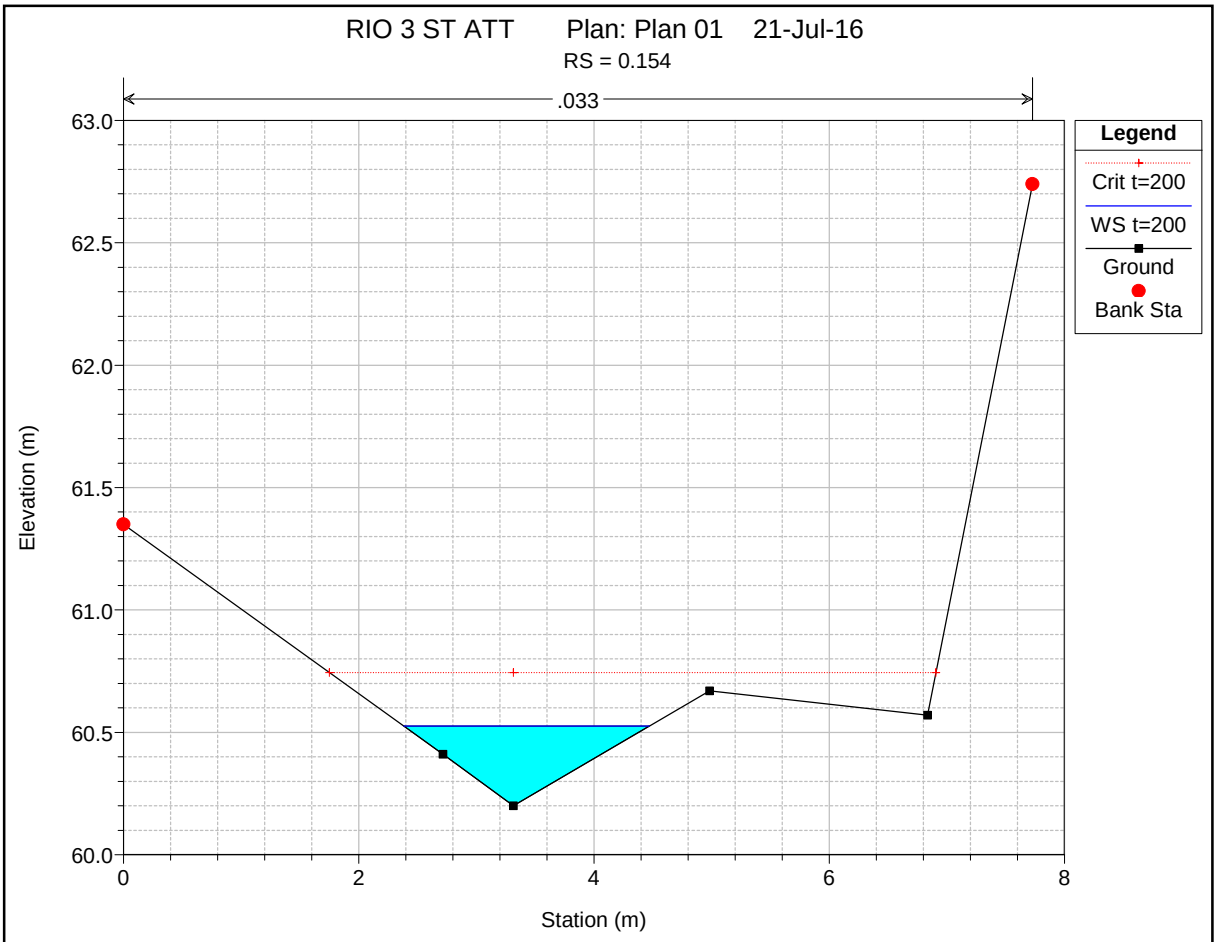
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

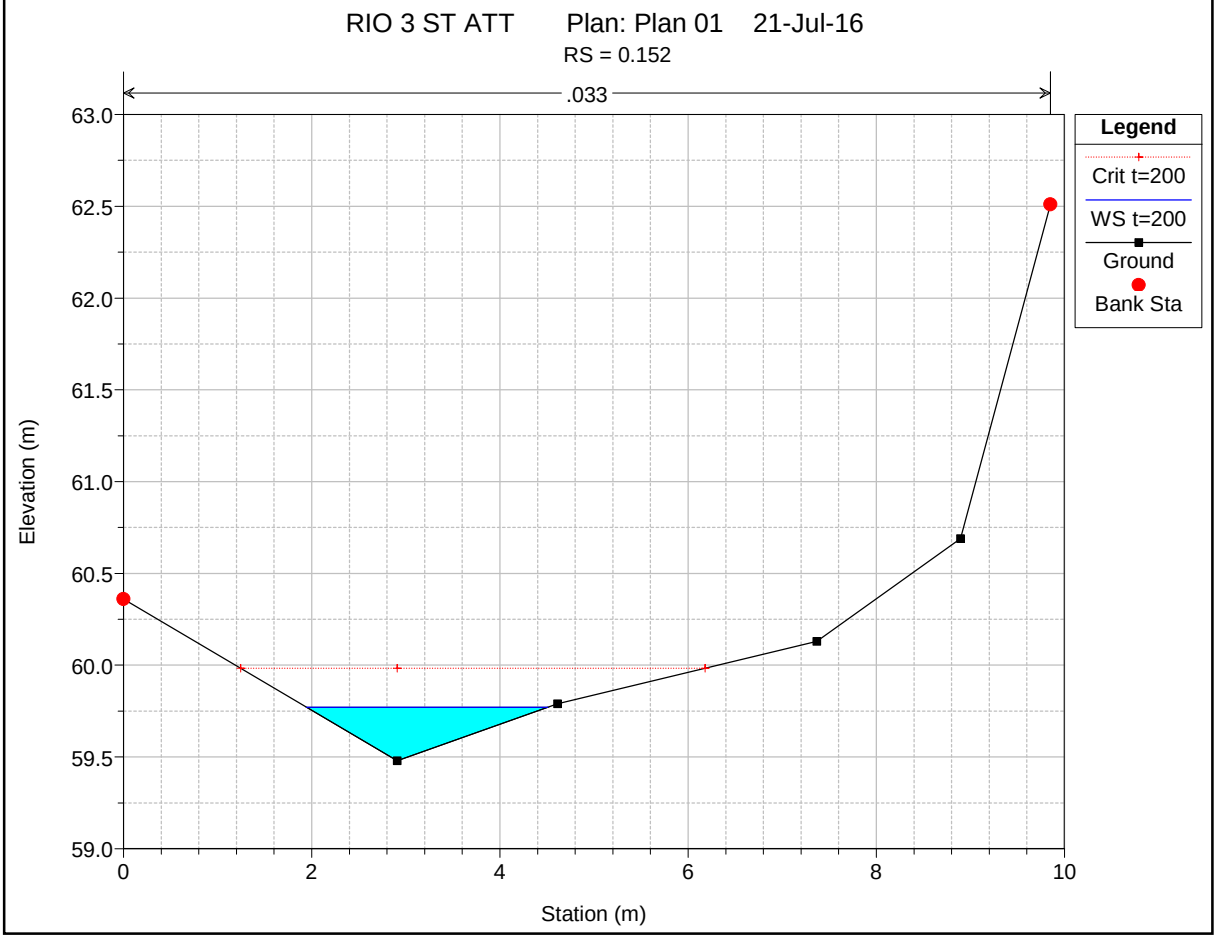
Vel Chnl = Velocità della corrente nel canale.

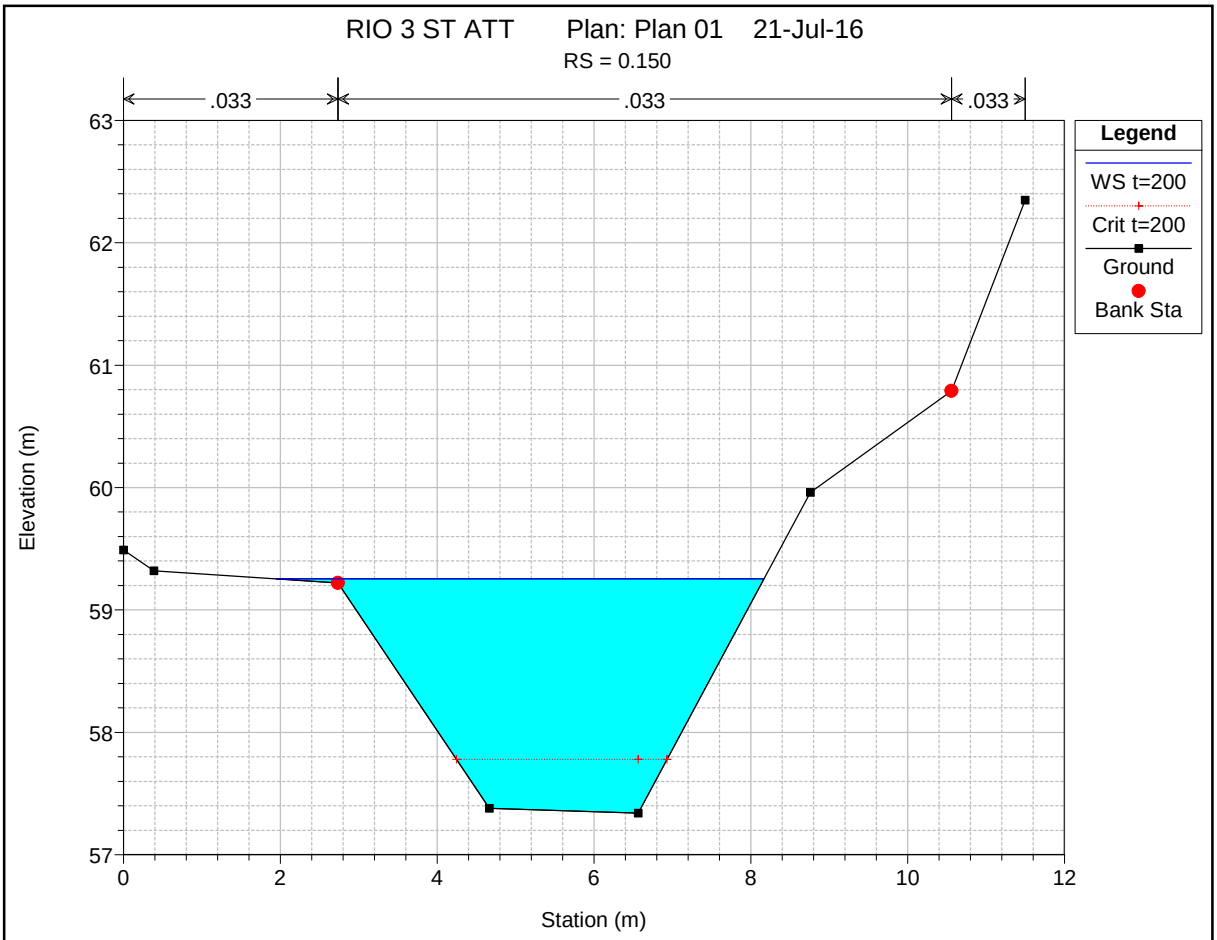
Froude = n° di froude della corrente.

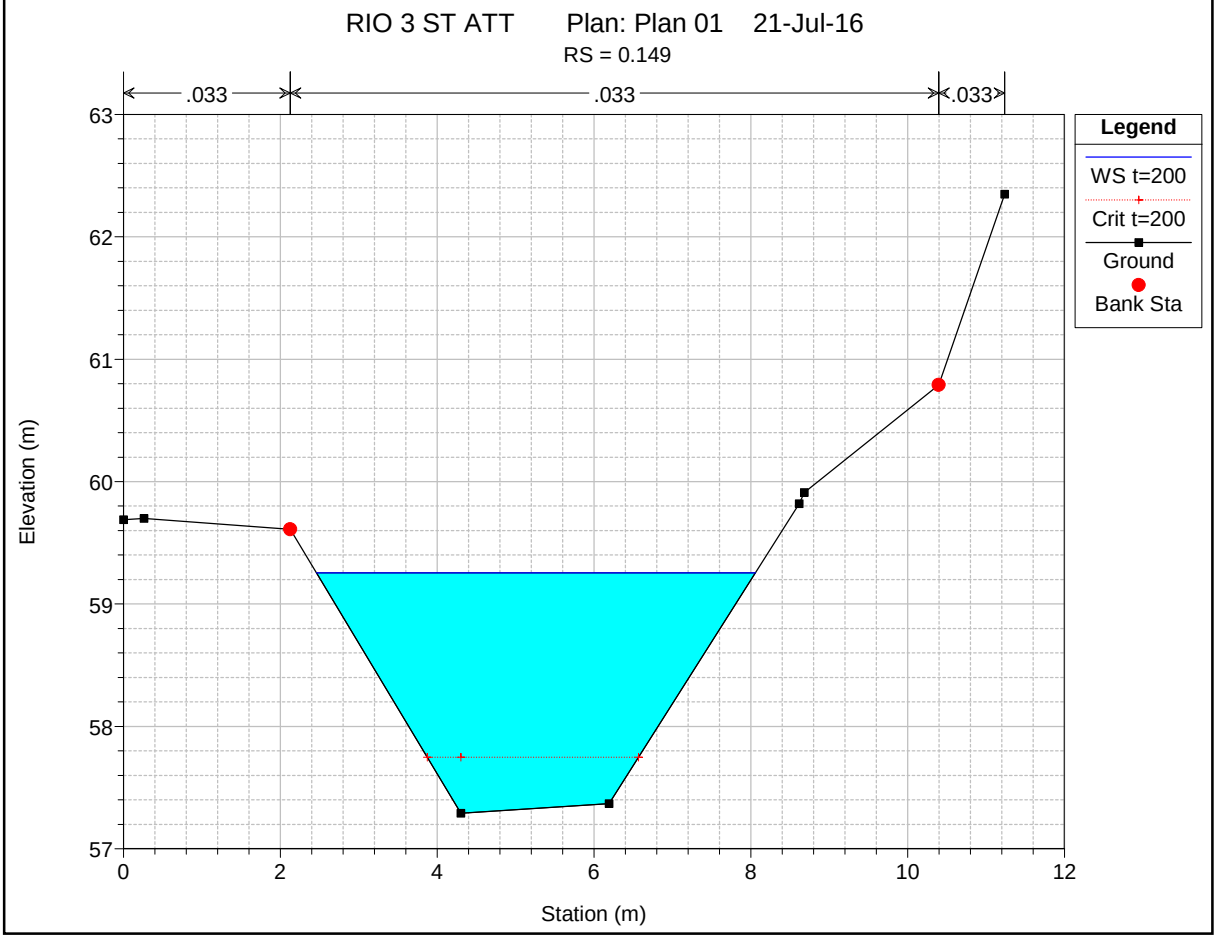
Vel. Head = $U^2/2g$.

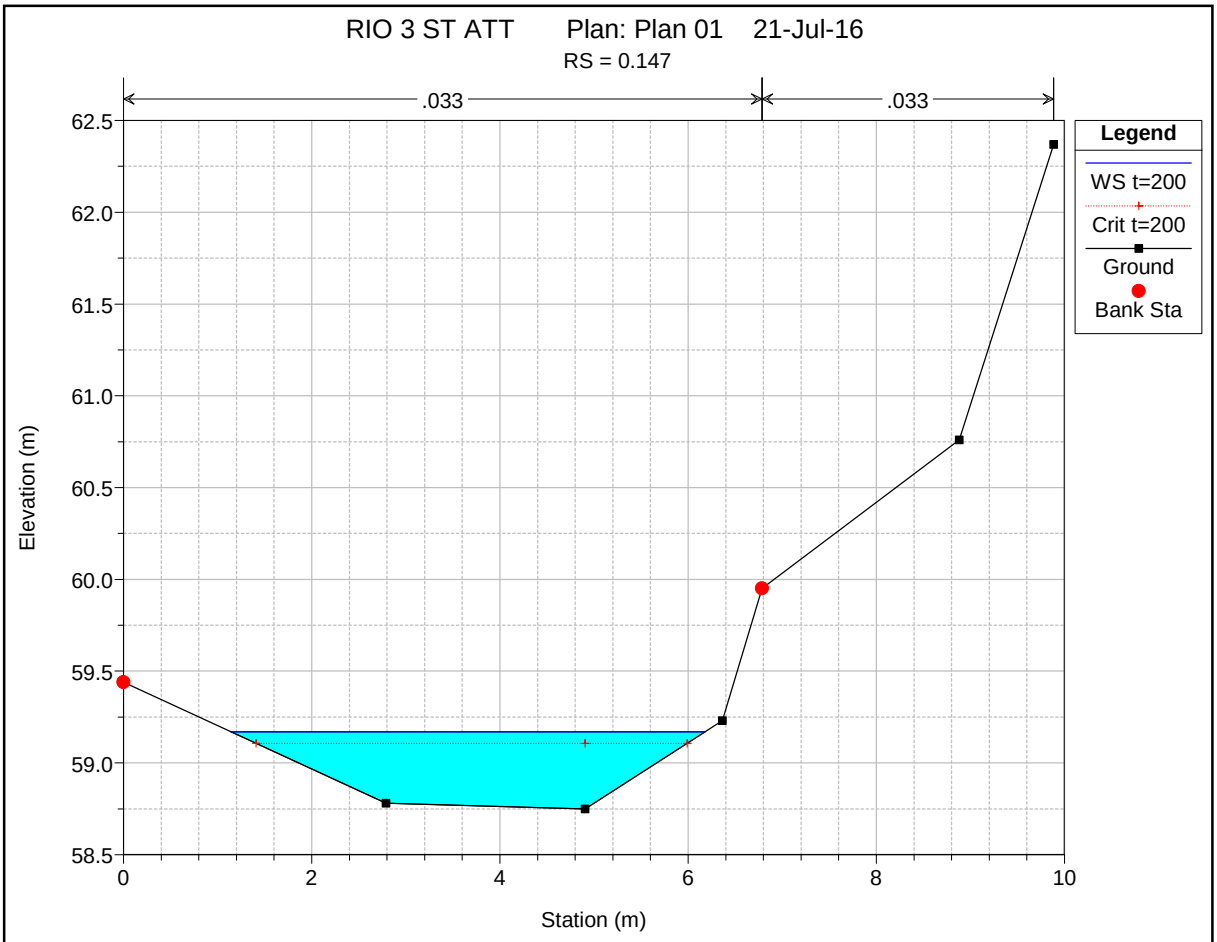
STATO ATTUALE

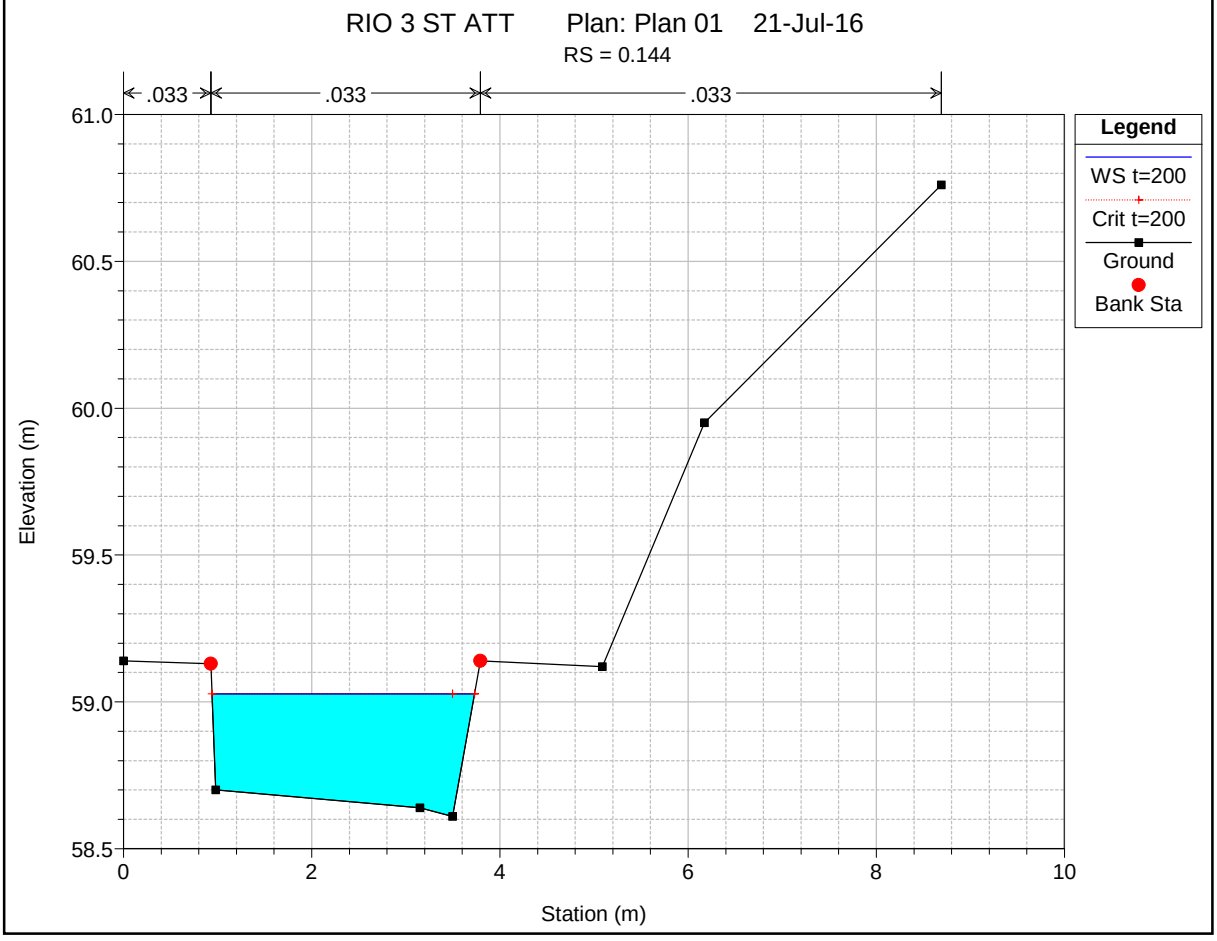

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.154
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63.0
62.5
62.0
61.5
61.0
60.5
60.0
0
2
4
6
8

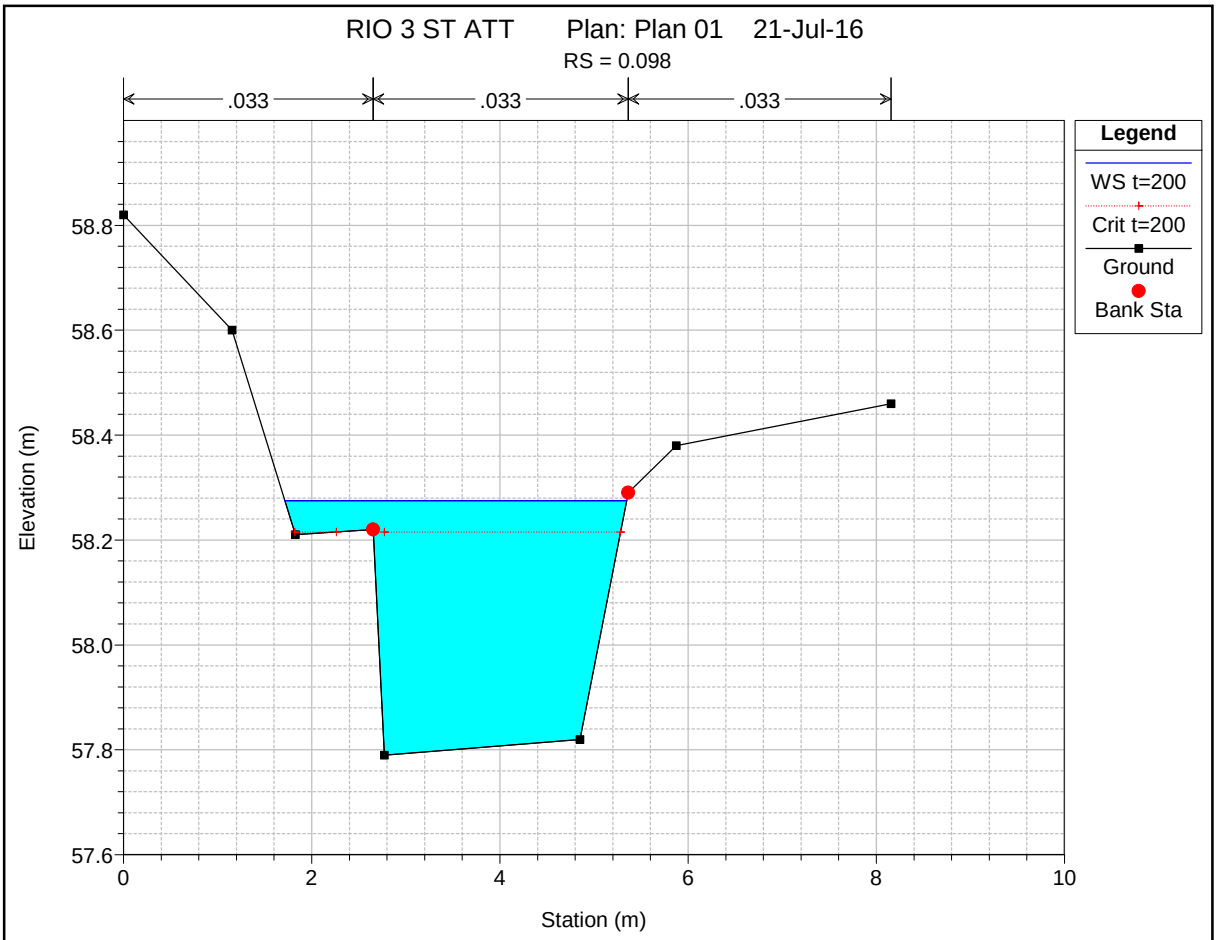

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.152
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63.0
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
0
2
4
6
8
10

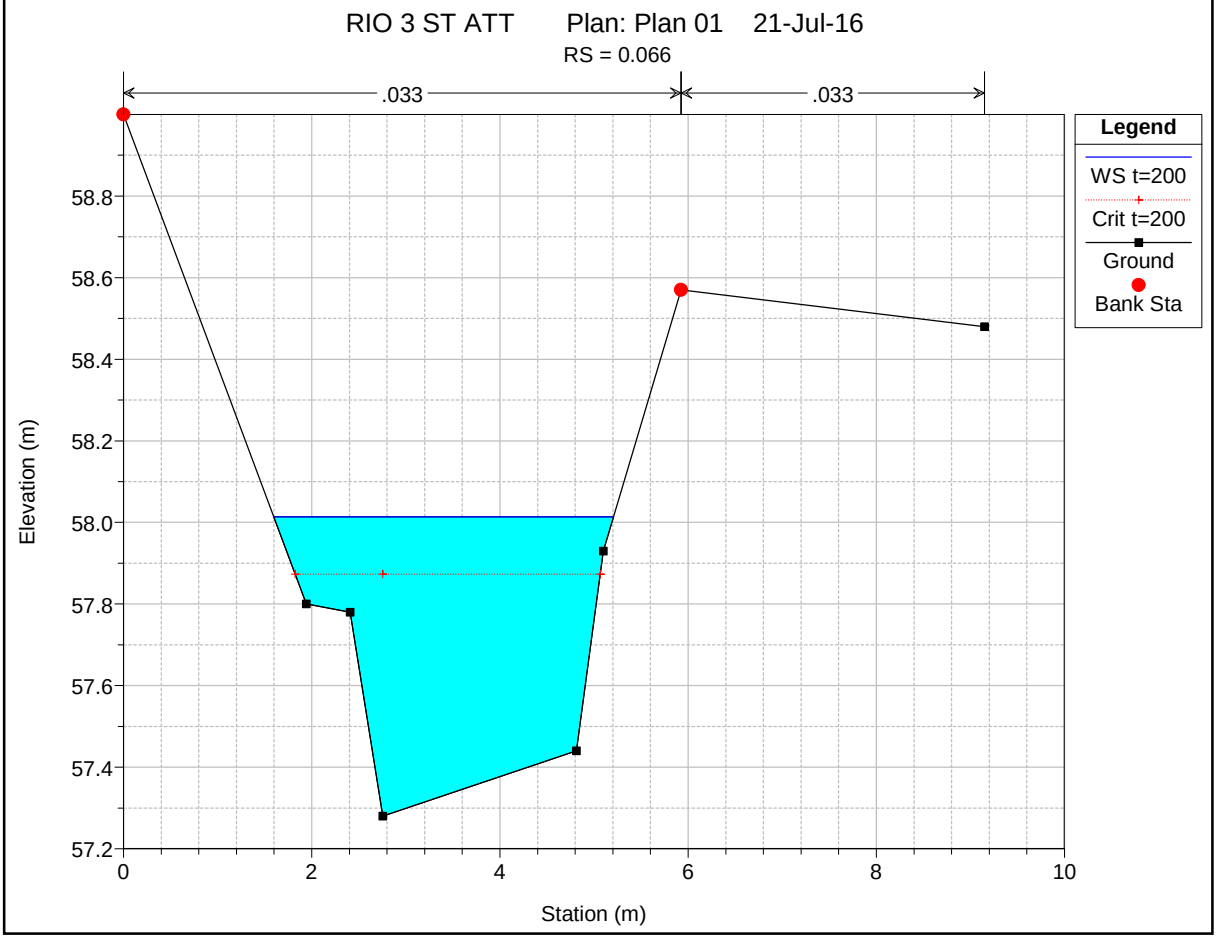

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.150
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63
62
61
60
59
58
57
0
2
4
6
8
10
12

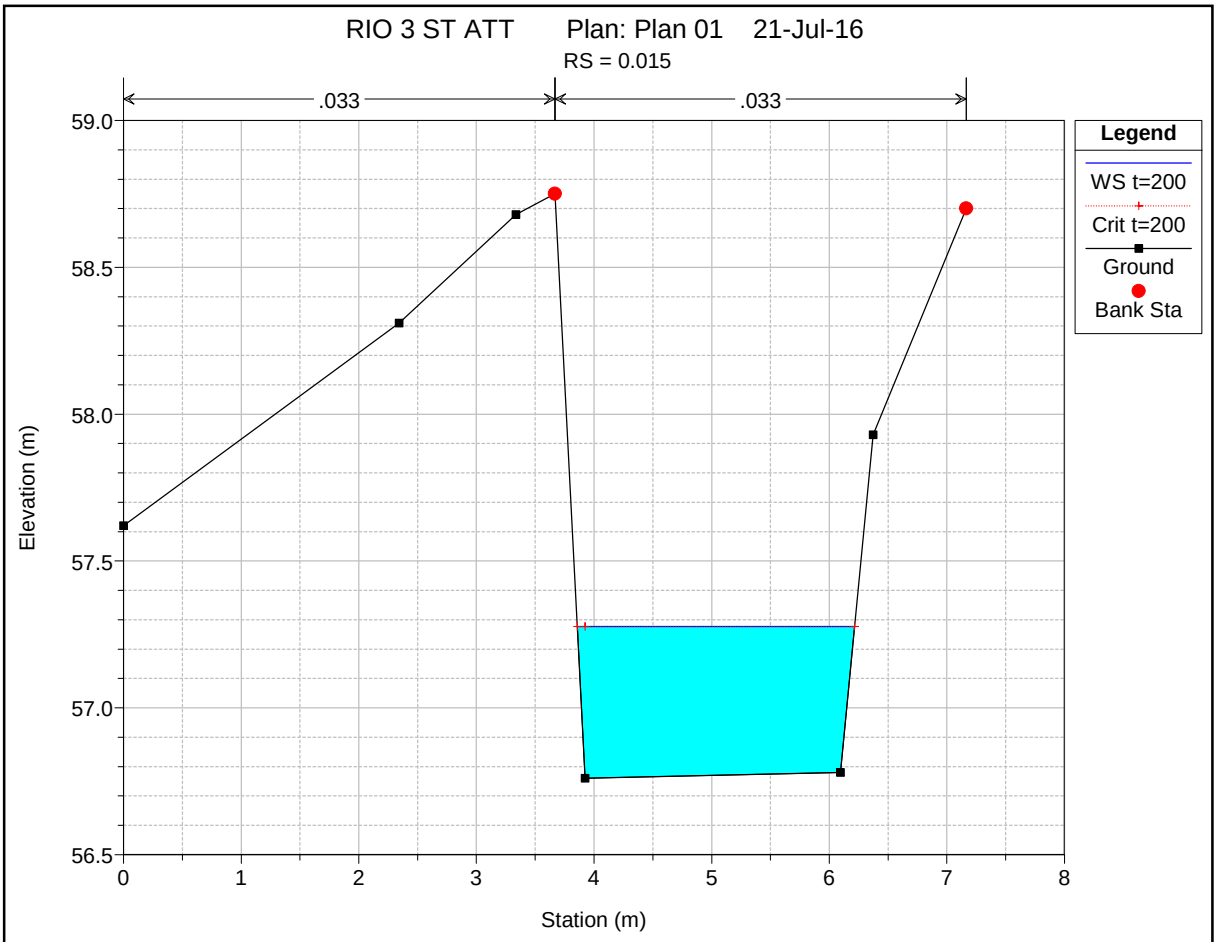

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.149
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63
62
61
60
59
58
57
0
2
4
6
8
10
12

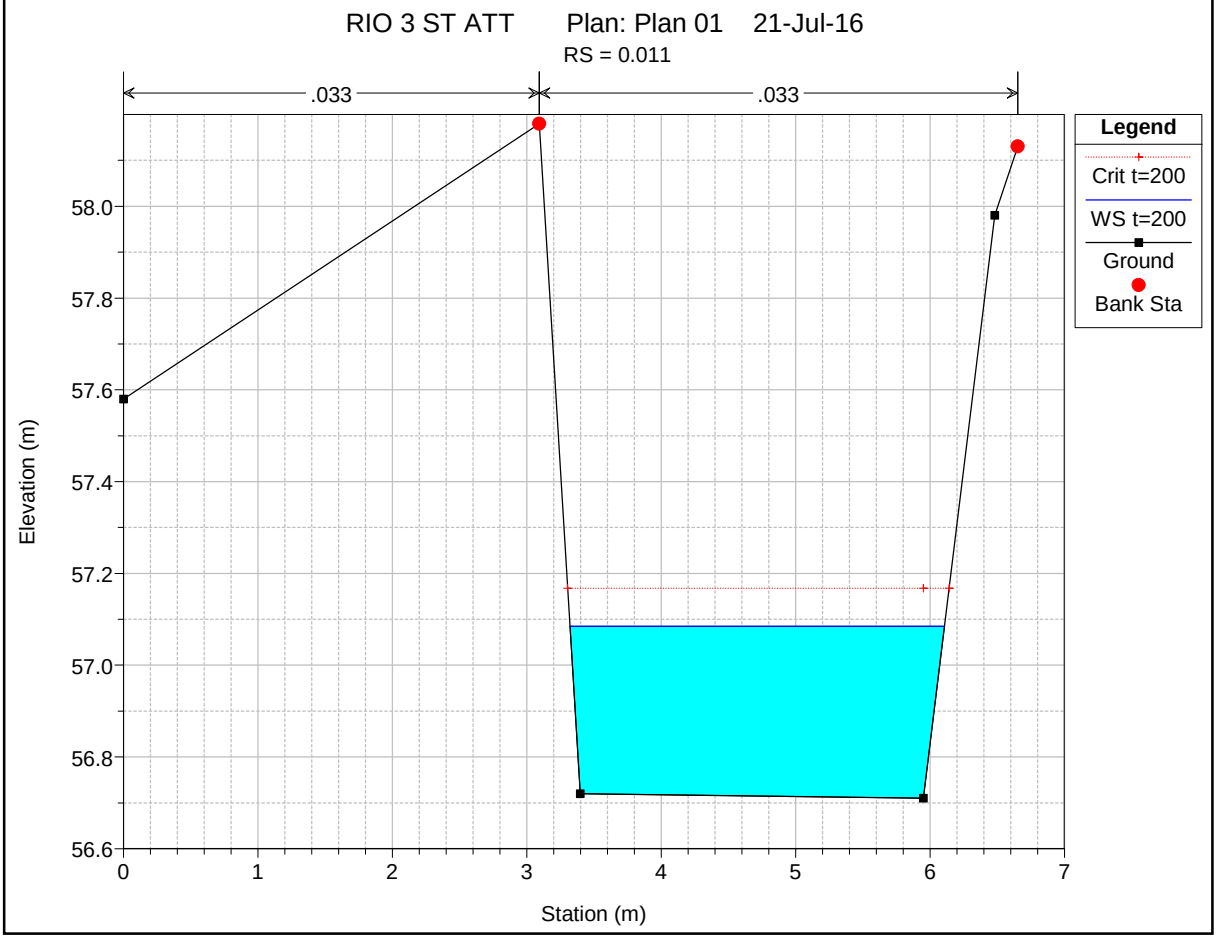

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.147
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
58.5
0
2
4
6
8
10

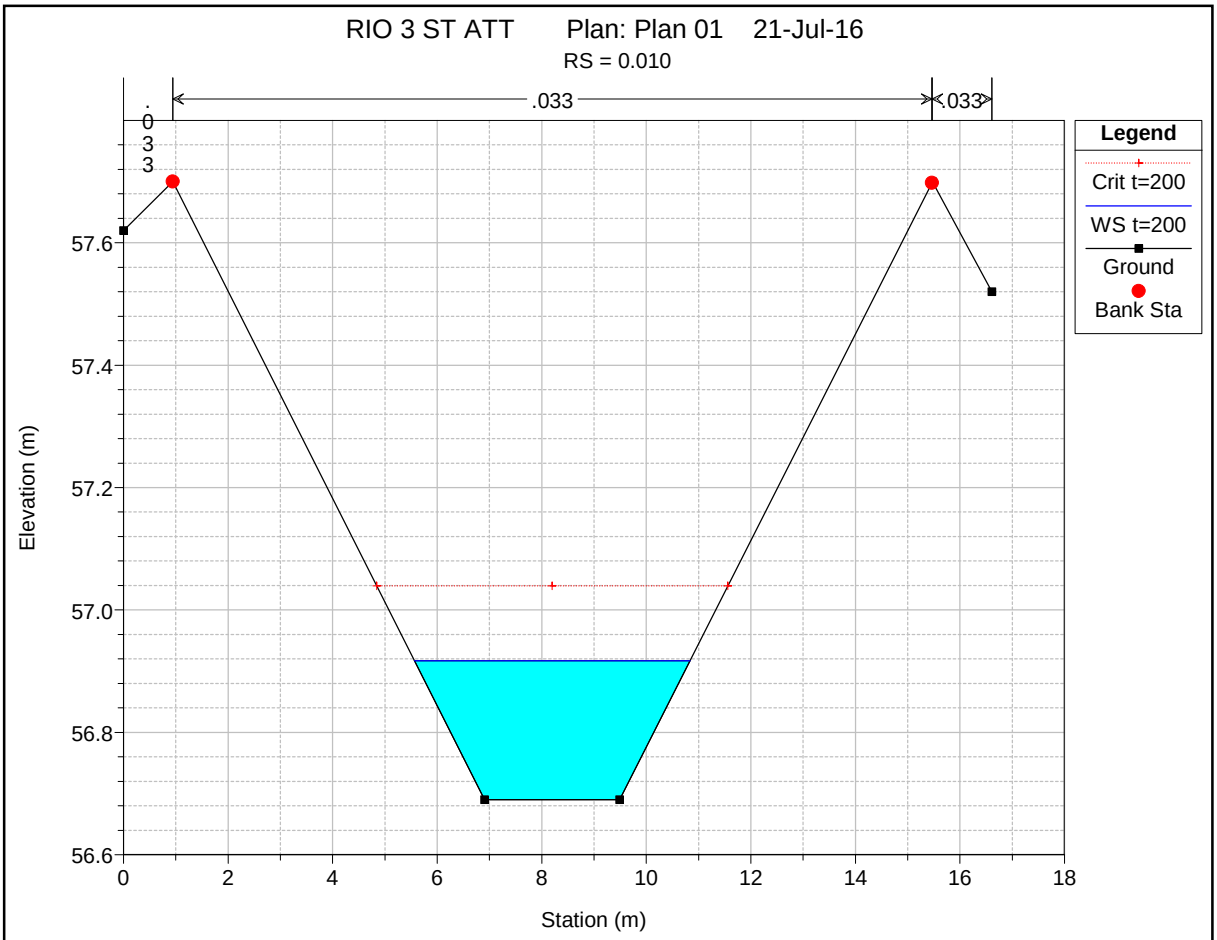

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.144
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
61.0
60.5
60.0
59.5
59.0
58.5
0
2
4
6
8
10

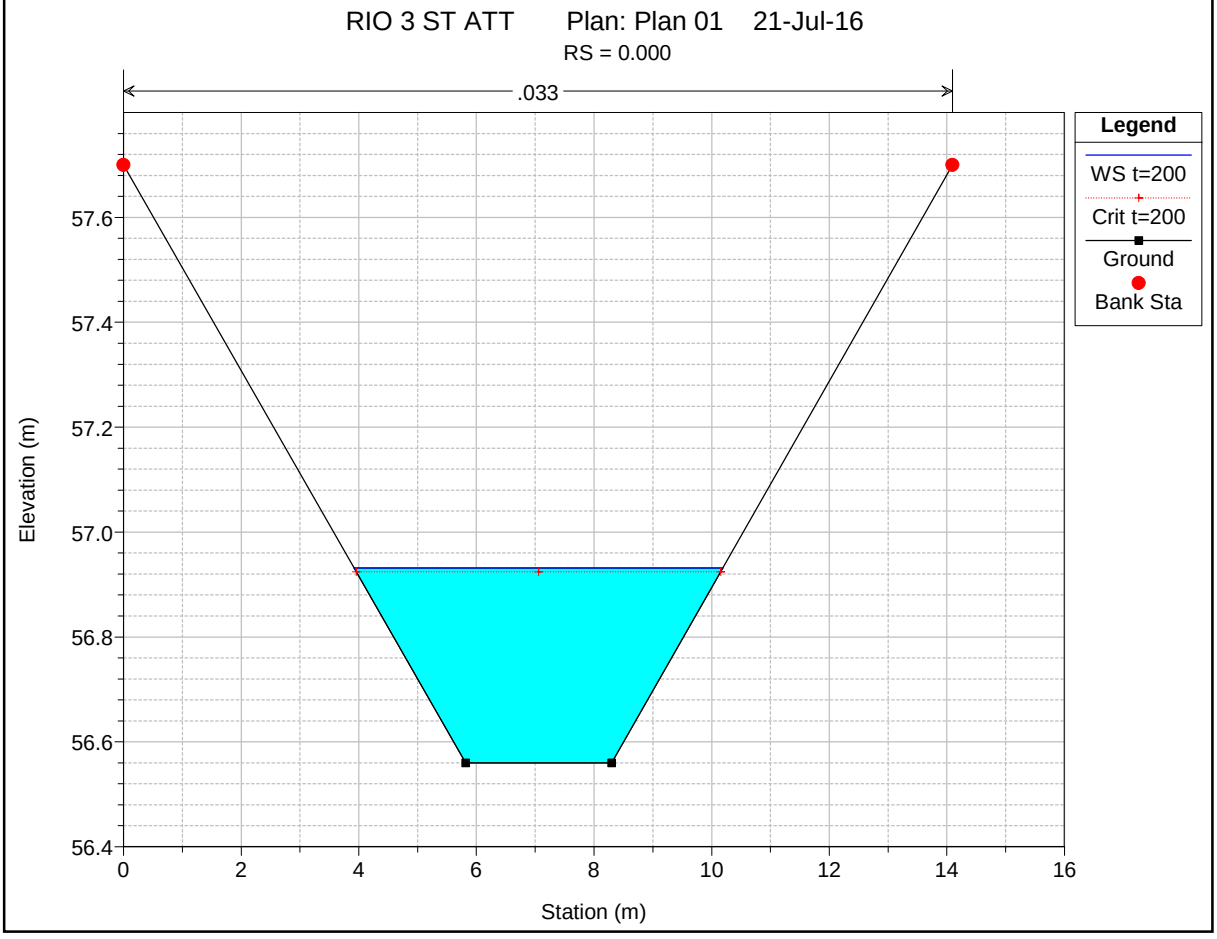

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.098
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.8
58.6
58.4
58.2
58.0
57.8
57.6
0
2
4
6
8
10
Station (m)

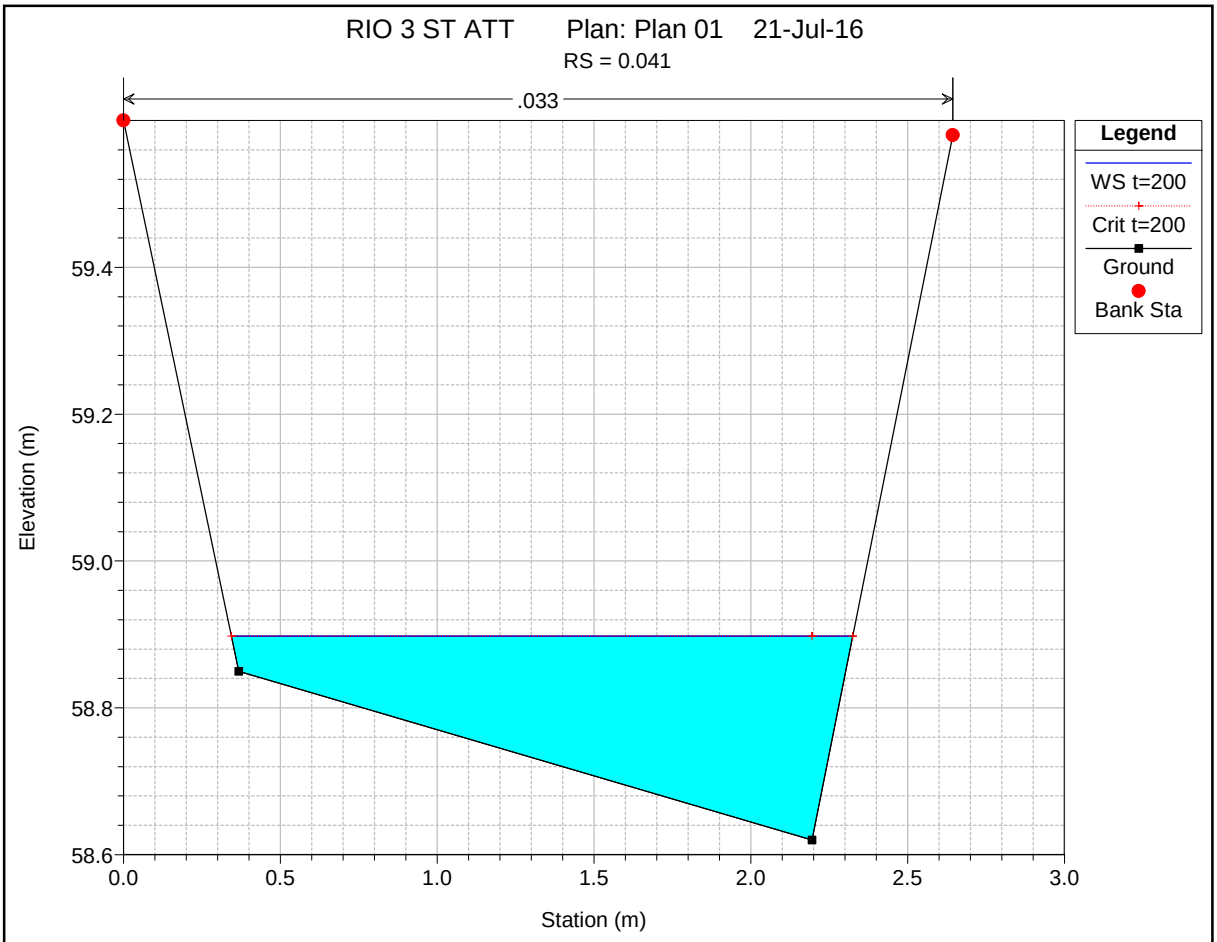

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.066
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.8
58.6
58.4
58.2
58.0
57.8
57.6
57.4
57.2
0
2
4
6
8
10
Station (m)

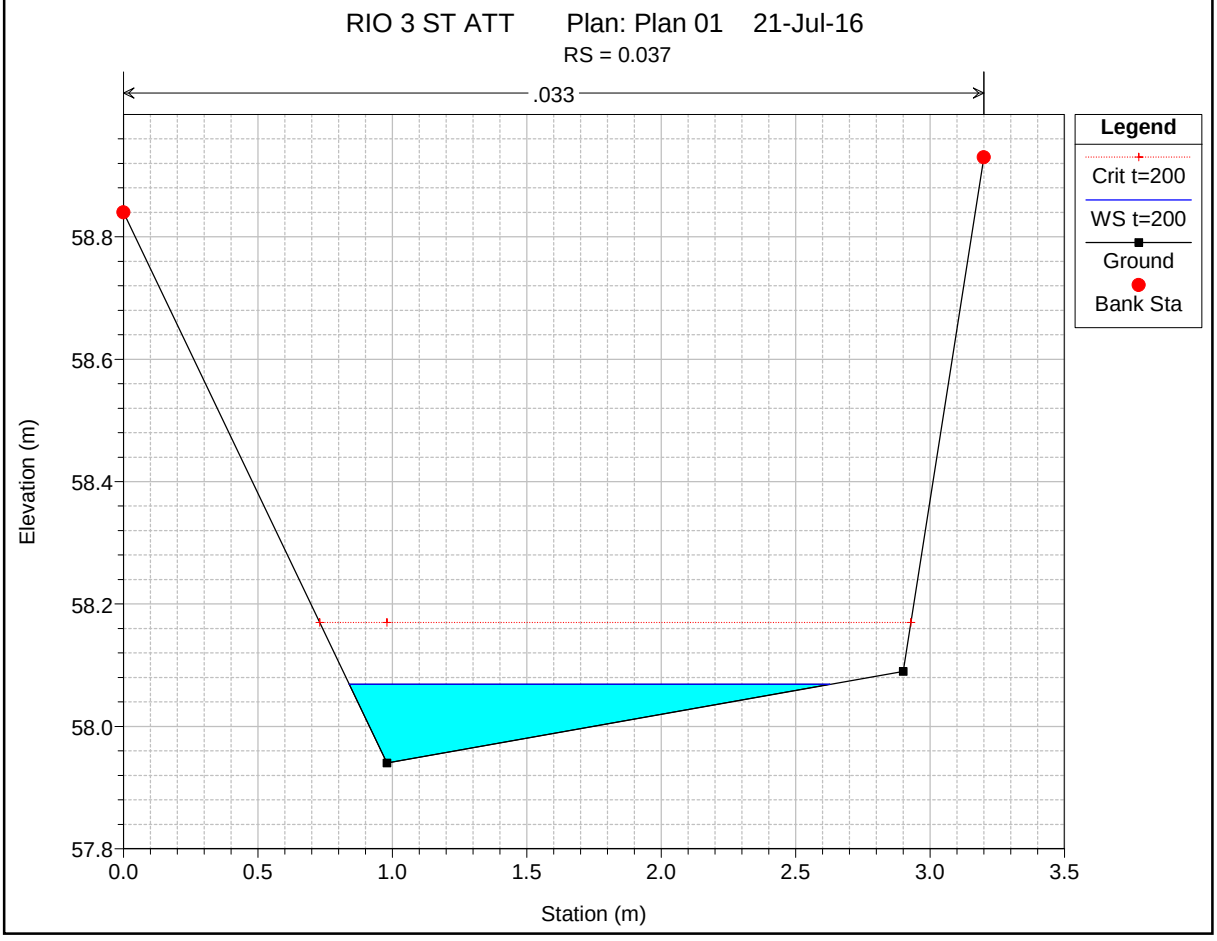

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.015
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
59.0
58.5
58.0
57.5
57.0
56.5
0
1
2
3
4
5
6
7
8

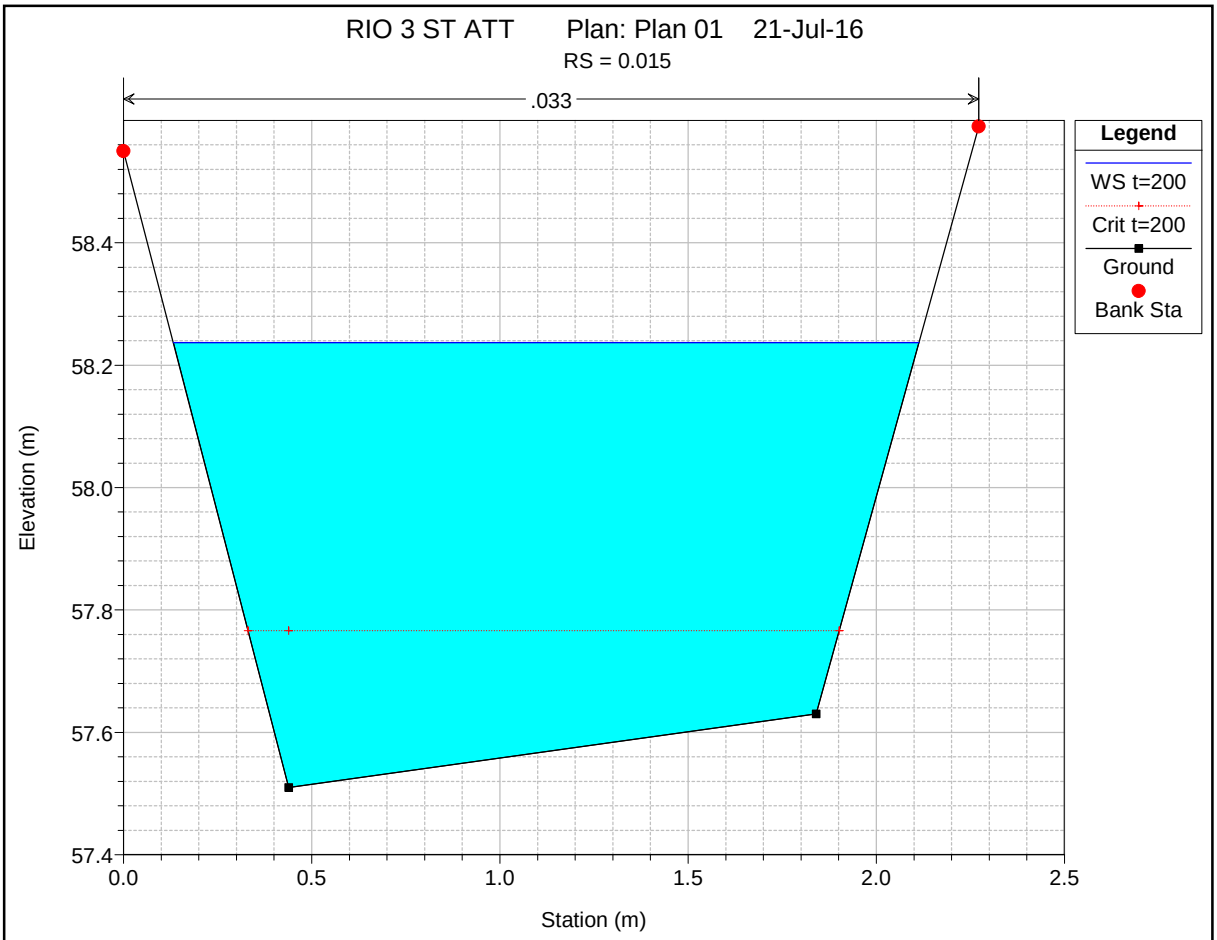

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.011
.033
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
58.0
57.8
57.6
57.4
57.2
57.0
56.8
56.6
0
1
2
3
4
5
6
7

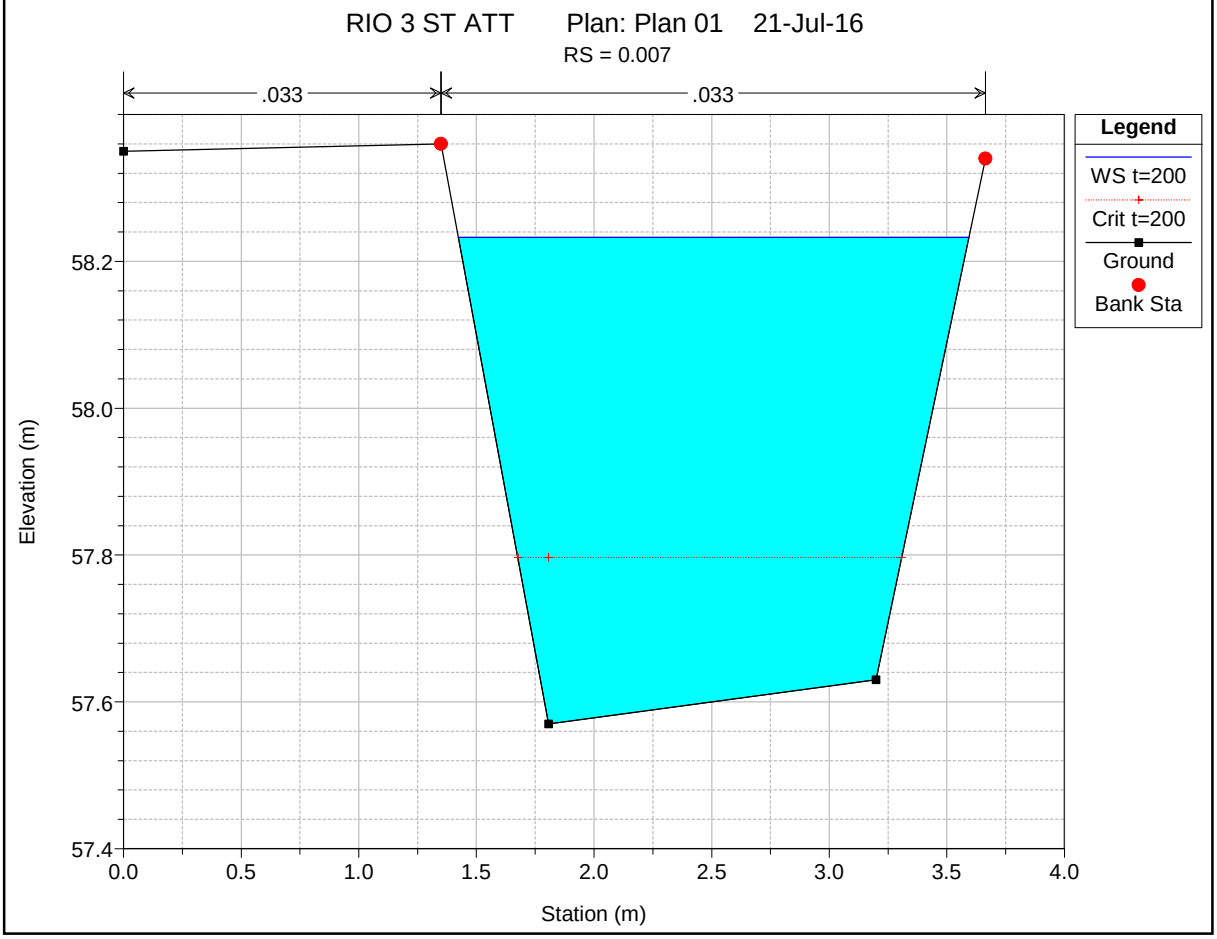

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.010
.033
.033
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.6
57.4
57.2
57.0
56.8
56.6
0
2
4
6
8
10
12
14
16
18


RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.000
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.6
57.4
57.2
57.0
56.8
56.6
56.4
0
2
4
6
8
10
12
14
16

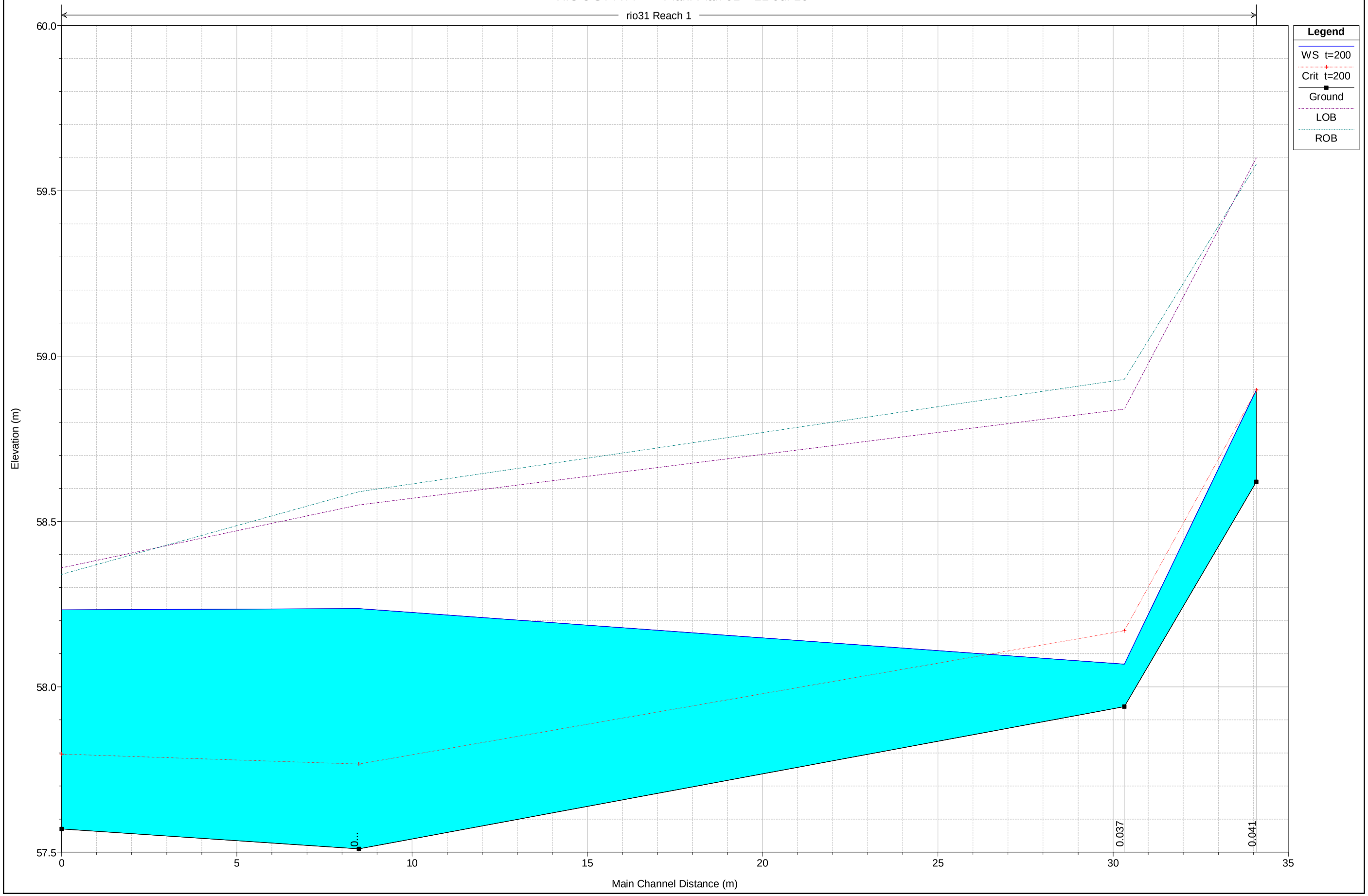

RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.041
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
59.4
59.2
59.0
58.8
58.6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Station (m)


RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.037
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
58.8
58.6
58.4
58.2
58.0
57.8
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)


RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.015
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.4
58.2
58.0
57.8
57.6
57.4
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)


RIO 3 ST ATT Plan: Plan 01 21-Jul-16
RS = 0.007
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.2
58.0
57.8
57.6
57.4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Station (m)

RIO 3 ST ATT Plan: Plan 01 21-Jul-16



RIO 3 ST ATT Plan: Plan 01 21-Jul-16

rio3 Reach 2

rio3 Reach 1

Legend

WS t=200

Crit t=200

Ground

LOB

ROB

Elevation (m)

63

62

61

60

59

58

57

56

0.010

0.011

0.015

0.066

0.098

0.144

0.147

0.149

0.152

0.154

0

20

40

60

80

100

120

140

160

Main Channel Distance (m)

HEC-RAS Plan: Plan 01 Profile: t=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio31	Reach 1	0.041	t=200	0.40	58.62	58.90	58.90	1.27	0.70	59.60	0.68	59.58	0.08	1.01
rio31	Reach 1	0.037	t=200	0.40	57.94	58.07	58.17	3.48	0.77	58.84	0.86	58.93	0.62	4.38
rio31	Reach 1	0.015	t=200	0.40	57.51	58.24	57.77	0.35	0.31	58.55	0.35	58.59	0.01	0.15
rio31	Reach 1	0.007	t=200	0.40	57.57	58.23	57.80	0.36	0.13	58.36	0.11	58.34	0.01	0.16
rio3	Reach 1	0.154	t=200	1.80	60.20	60.53	60.74	5.32	0.83	61.35	2.21	62.74	1.44	4.22
rio3	Reach 1	0.152	t=200	1.80	59.48	59.77	59.98	4.82	0.59	60.36	2.74	62.51	1.19	4.04
rio3	Reach 1	0.150	t=200	1.80	57.34	59.25	57.78	0.26	-0.03	59.22	1.54	60.79	0.00	0.07
rio3	Reach 1	0.149	t=200	1.80	57.29	59.25	57.75	0.25	0.36	59.61	1.54	60.79	0.00	0.07
rio3	Reach 1	0.147	t=200	1.80	58.75	59.17	59.11	1.25	0.27	59.44	0.78	59.95	0.08	0.74
rio3	Reach 1	0.144	t=200	1.80	58.61	59.03	59.03	1.85	0.10	59.13	0.11	59.14	0.18	1.00
rio3	Reach 1	0.098	t=200	1.80	57.79	58.28	58.22	1.58	-0.06	58.22	0.01	58.29	0.13	0.78
rio3	Reach 2	0.066	t=200	2.52	57.28	58.01	57.87	1.44	0.99	59.00	0.56	58.57	0.11	0.66
rio3	Reach 2	0.015	t=200	2.52	56.76	57.28	57.28	2.19	1.47	58.75	1.42	58.70	0.25	1.00
rio3	Reach 2	0.011	t=200	2.52	56.71	57.08	57.17	2.55	1.09	58.18	1.04	58.13	0.33	1.37
rio3	Reach 2	0.010	t=200	2.52	56.69	56.92	57.04	2.83	0.78	57.70	0.78	57.70	0.41	2.19
rio3	Reach 2	0.000	t=200	2.52	56.56	56.93	56.92	1.55	0.77	57.70	0.77	57.70	0.12	0.97

HEC-RAS Plan: Plan 01 Profile: t=200

River	Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
				(m)	(m)	(m3/s)
rio3	Reach 1	0.098	t=200	58.28	58.40	1.80
rio31	Reach 1	0.007	t=200	58.23	58.24	0.40
Junction:	2					
rio3	Reach 2	0.066	t=200	58.01	58.12	2.52

VERIFICA IDRAULICA

RIO 3

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

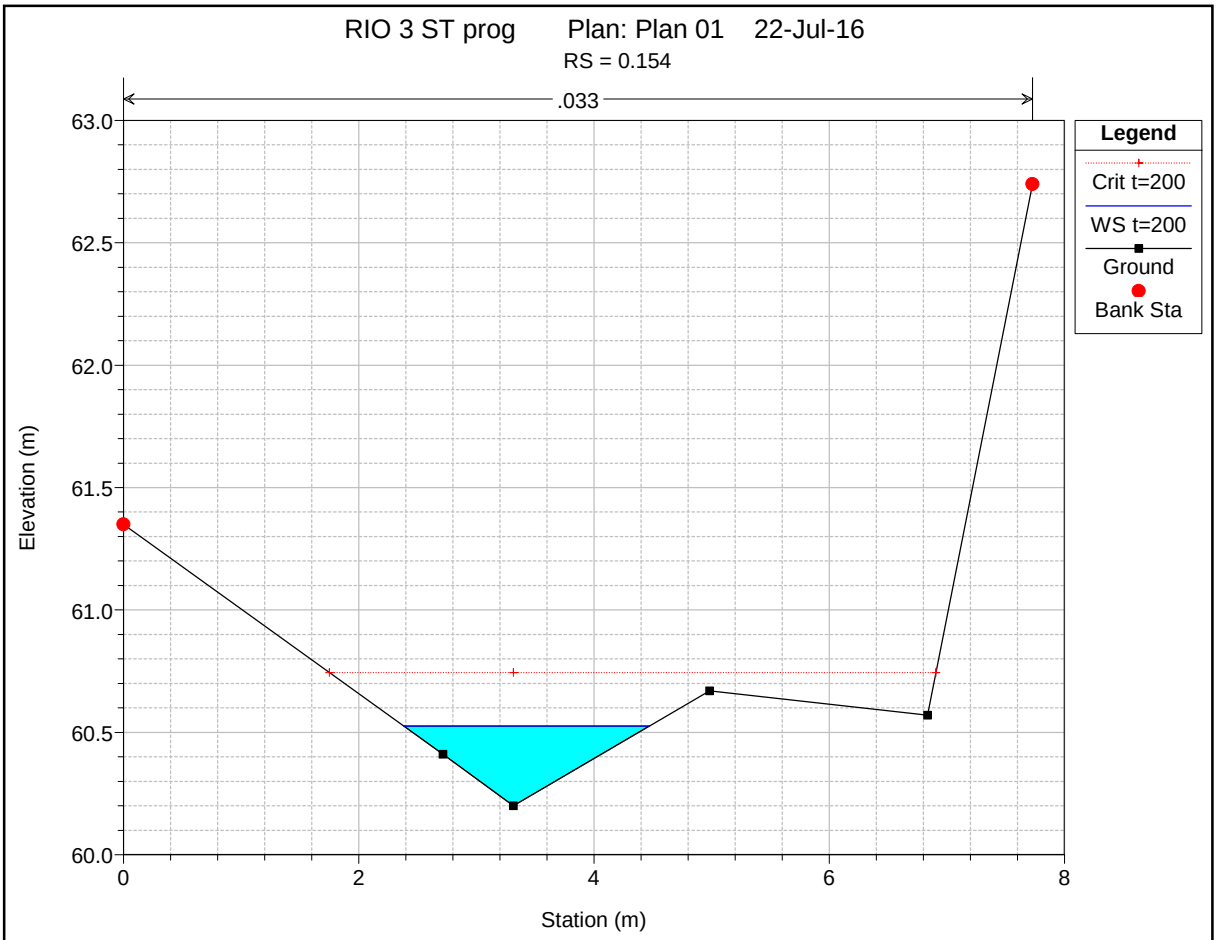
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

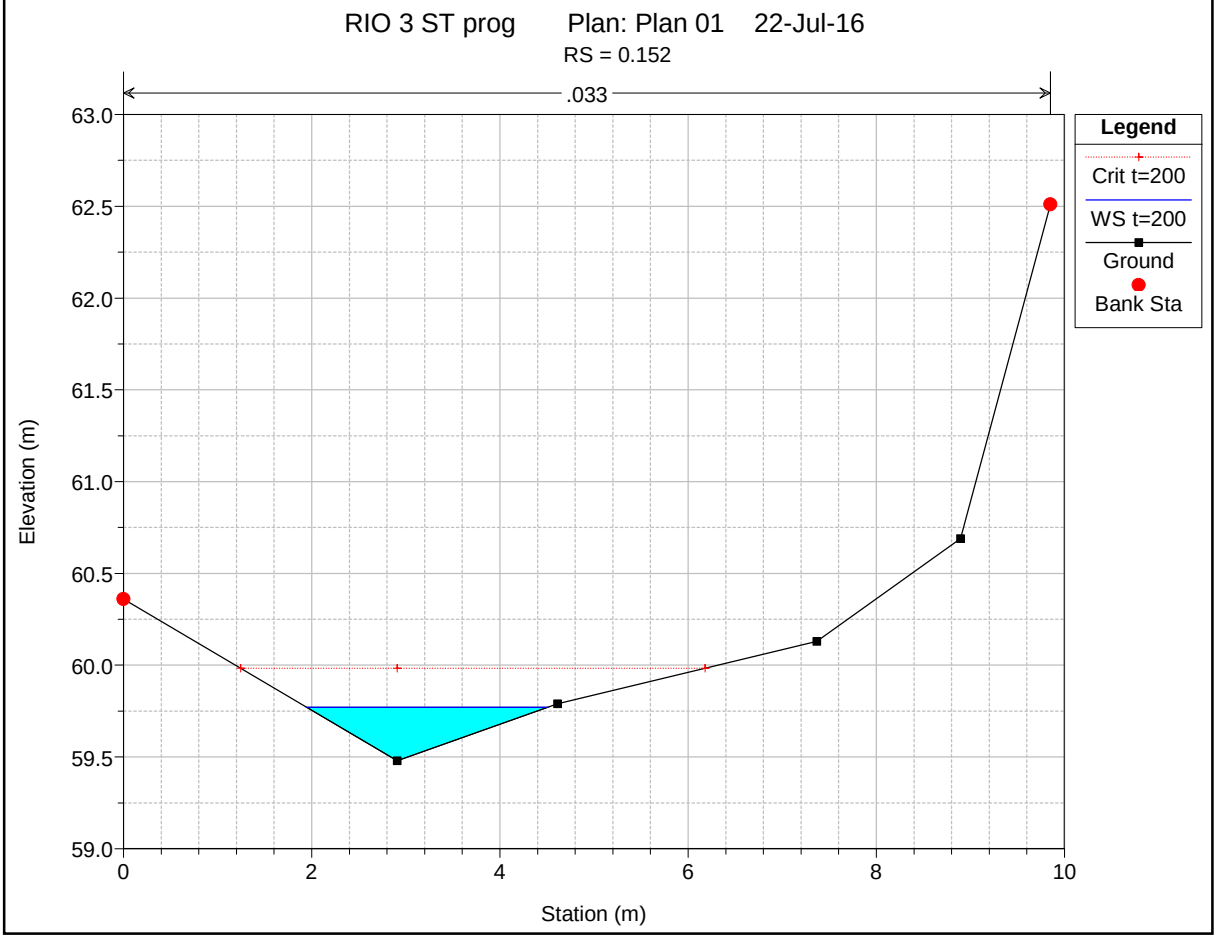
Vel Chnl = Velocità della corrente nel canale.

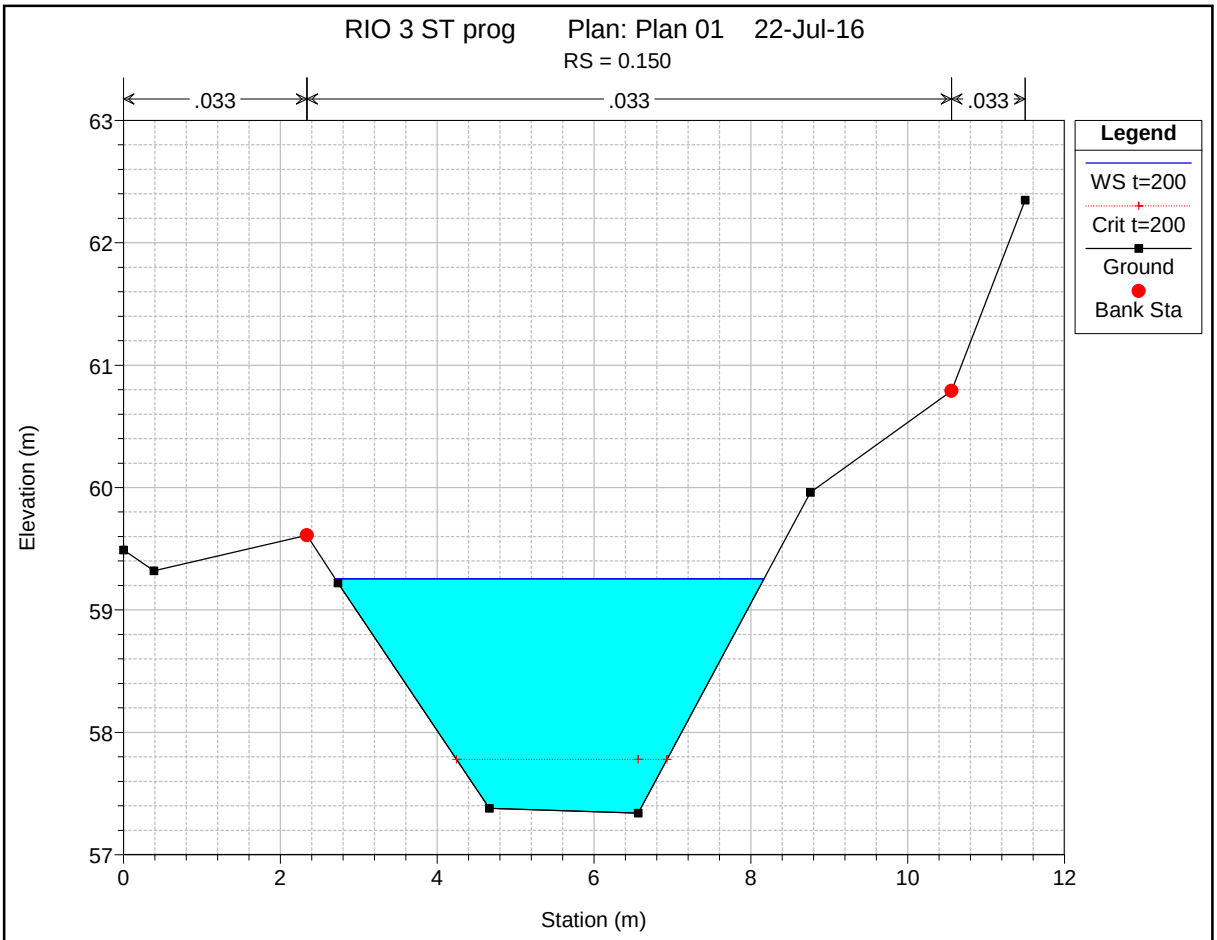
Froude = n° di froude della corrente.

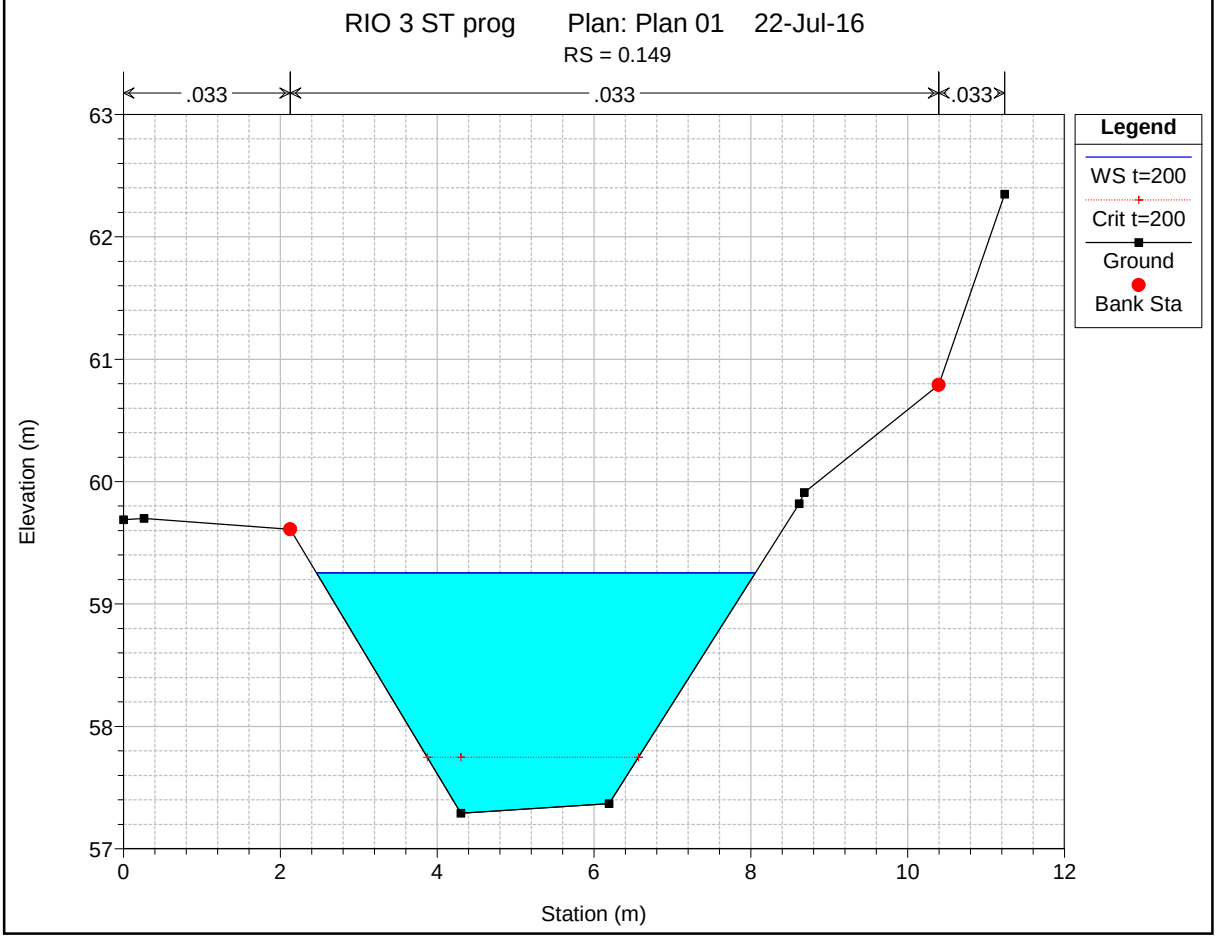
Vel. Head = $U^2/2g$.

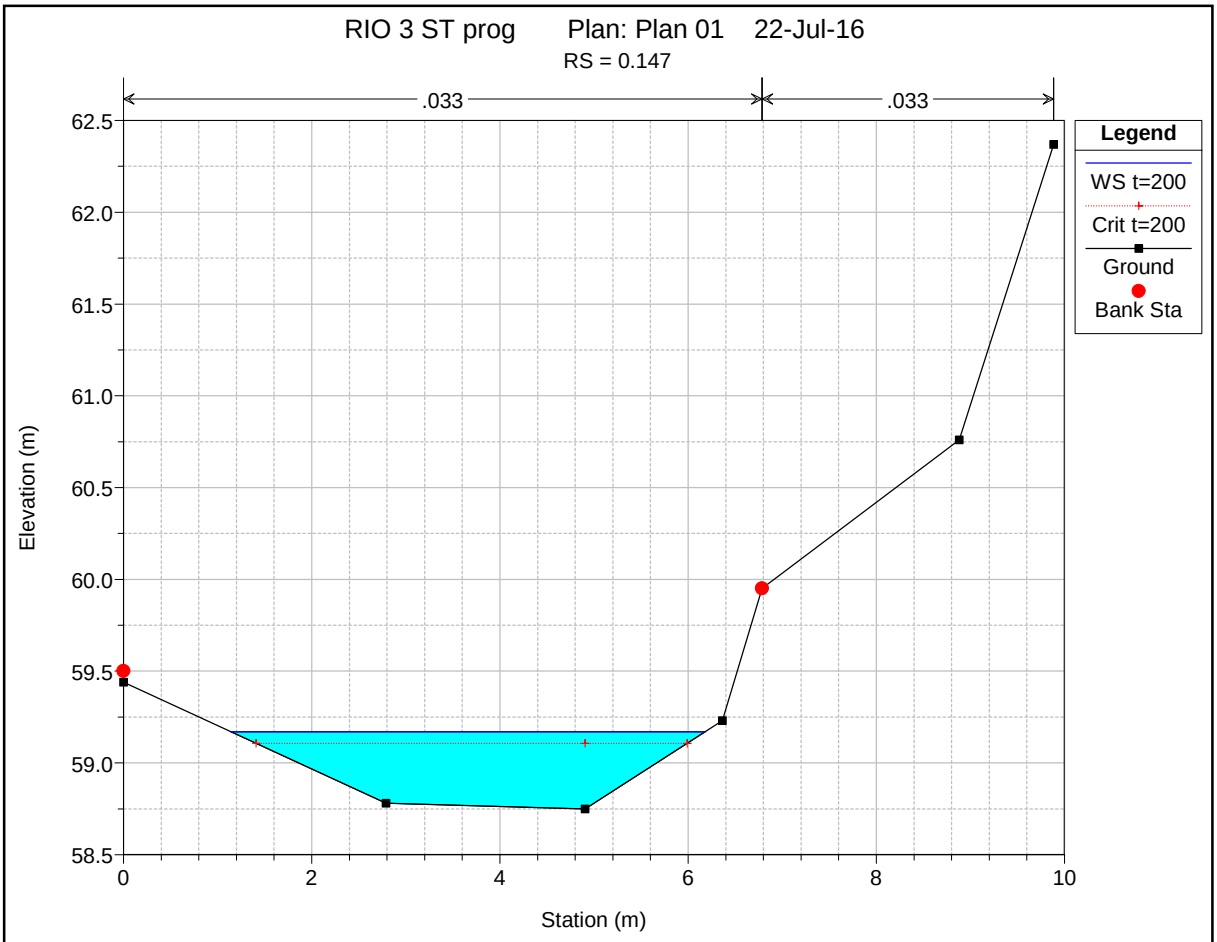
STATO di PROGETTO

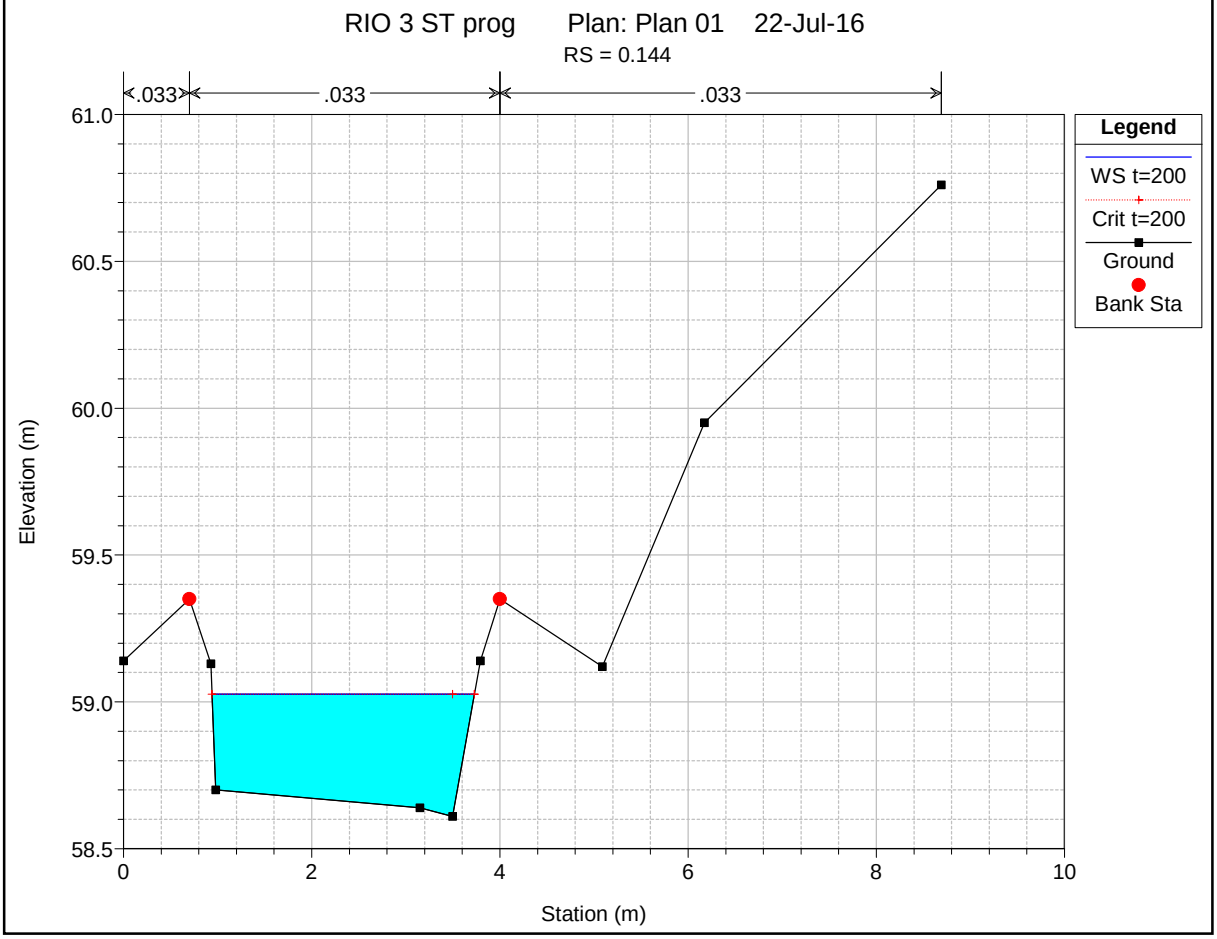

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.154
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63.0
62.5
62.0
61.5
61.0
60.5
60.0
0
2
4
6
8

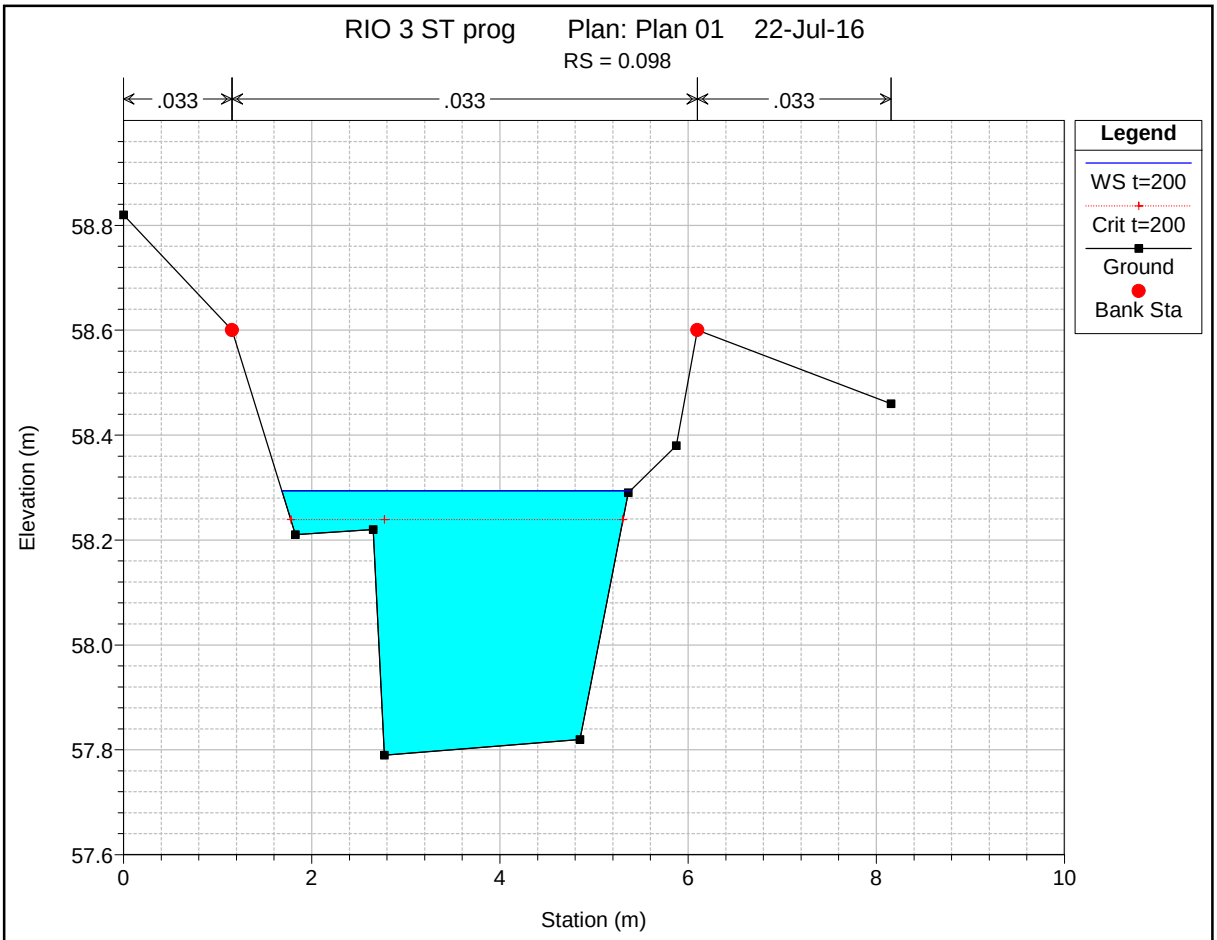

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.152
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63.0
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
0
2
4
6
8
10

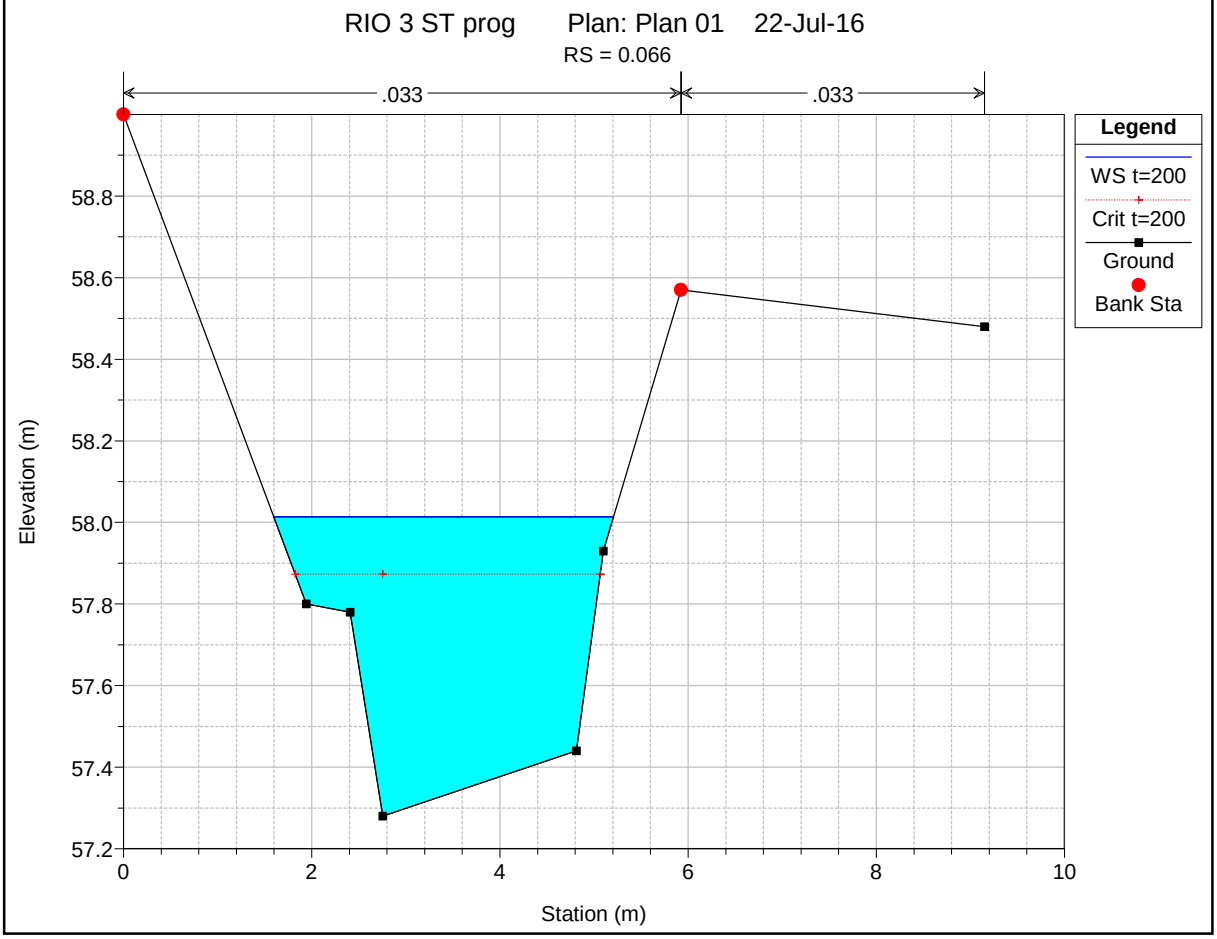

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.150
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63
62
61
60
59
58
57
0
2
4
6
8
10
12

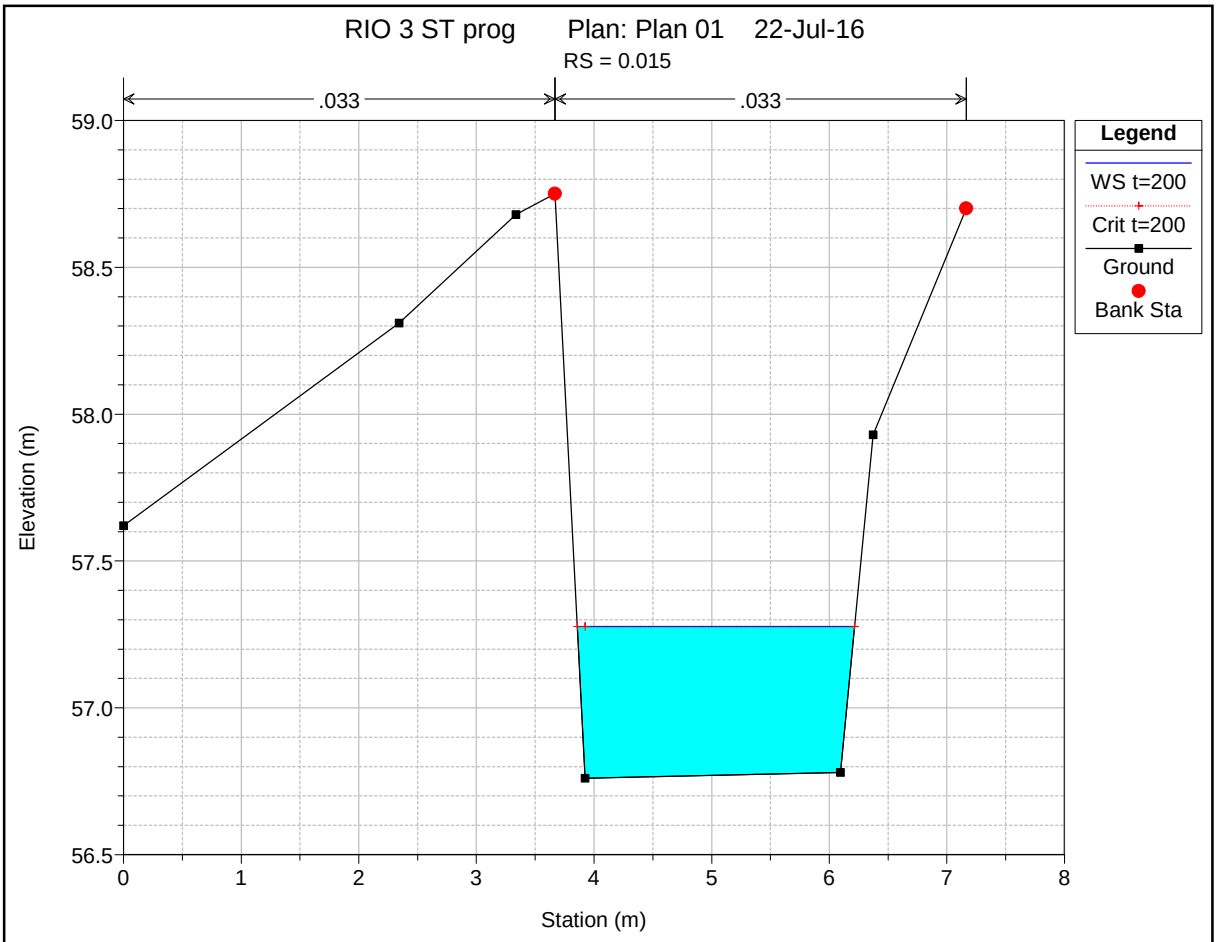

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.149
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
63
62
61
60
59
58
57
0
2
4
6
8
10
12

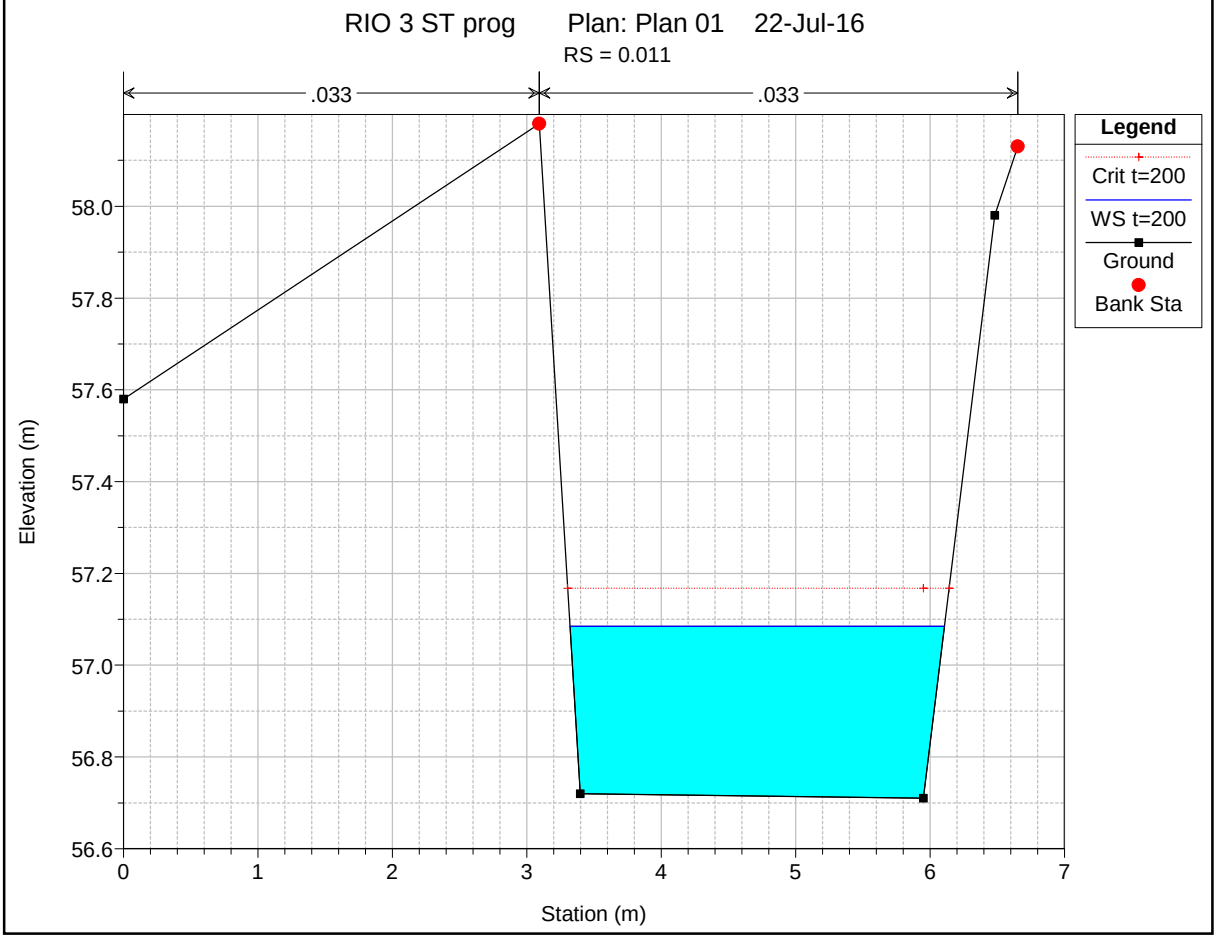

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.147
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
62.5
62.0
61.5
61.0
60.5
60.0
59.5
59.0
58.5
0
2
4
6
8
10

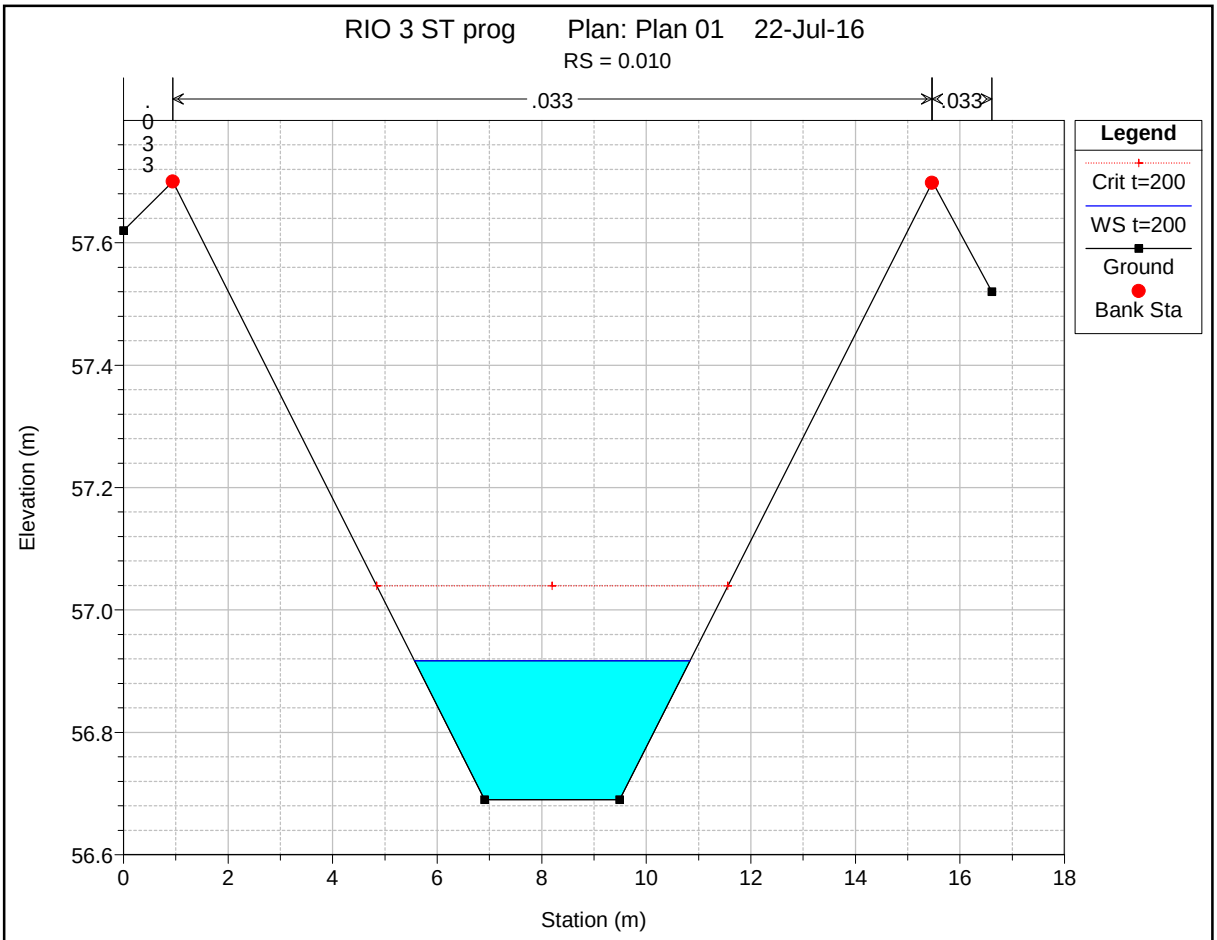

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.144
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
61.0
60.5
60.0
59.5
59.0
58.5
0
2
4
6
8
10

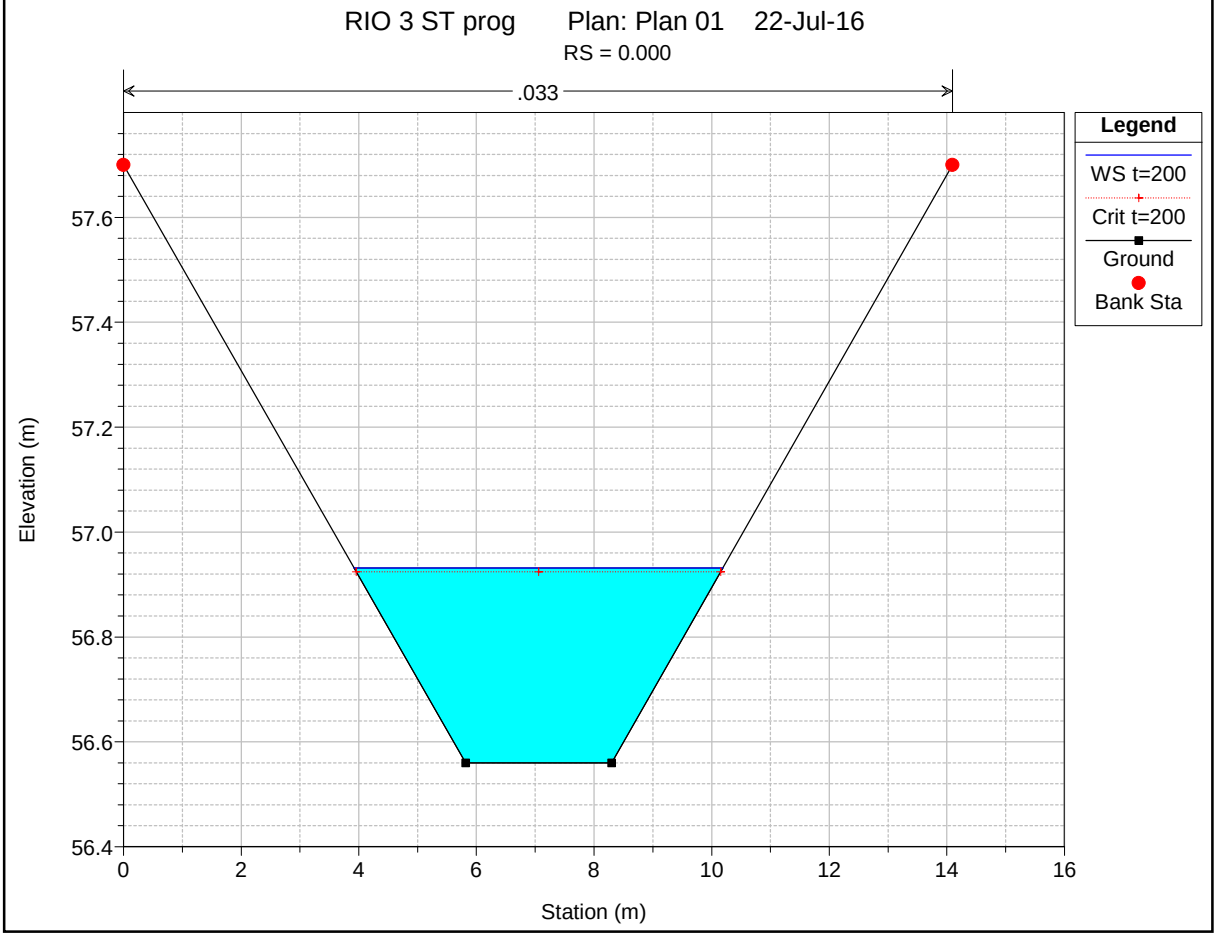

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.098
.033
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.8
58.6
58.4
58.2
58.0
57.8
57.6
0
2
4
6
8
10
Station (m)

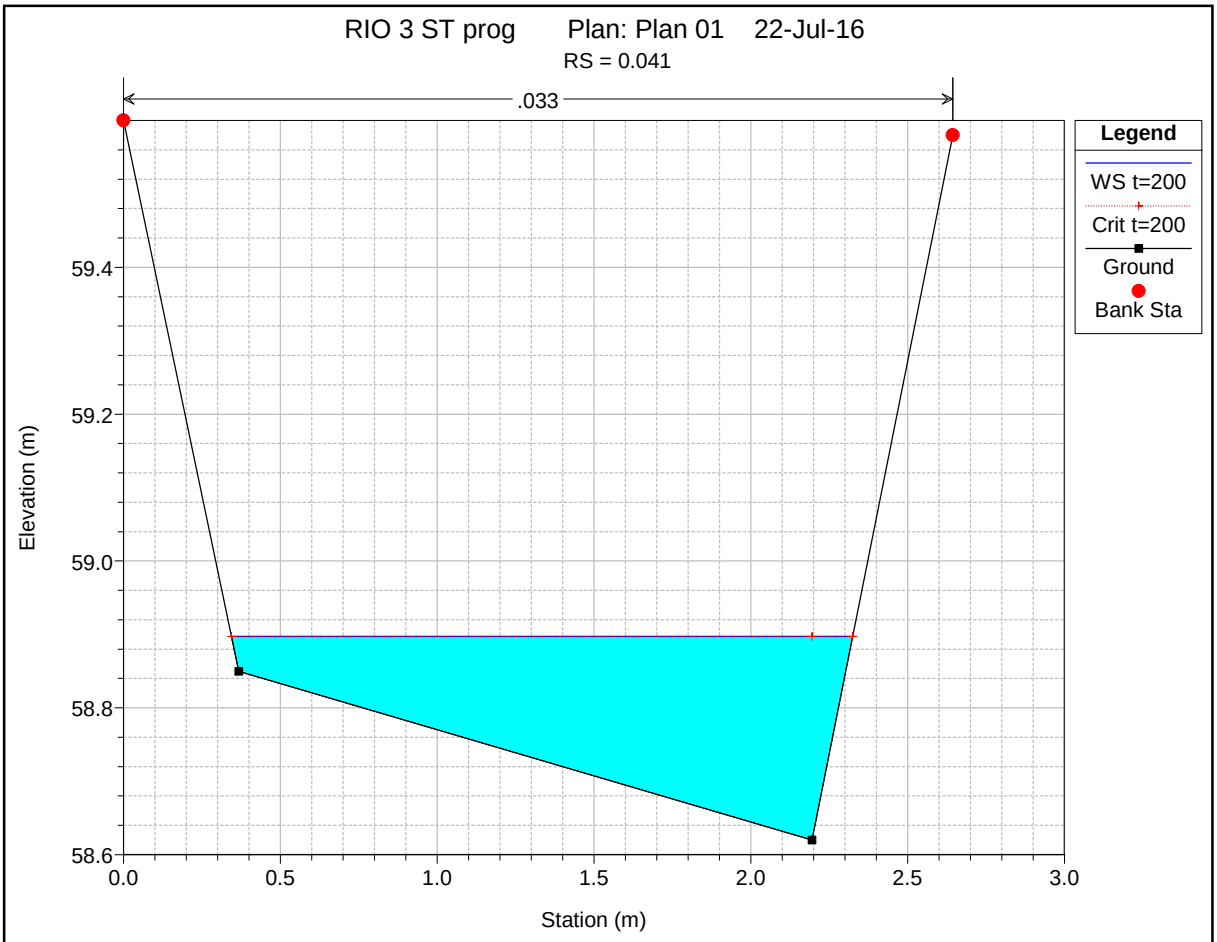

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.066
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.8
58.6
58.4
58.2
58.0
57.8
57.6
57.4
57.2
0
2
4
6
8
10
Station (m)

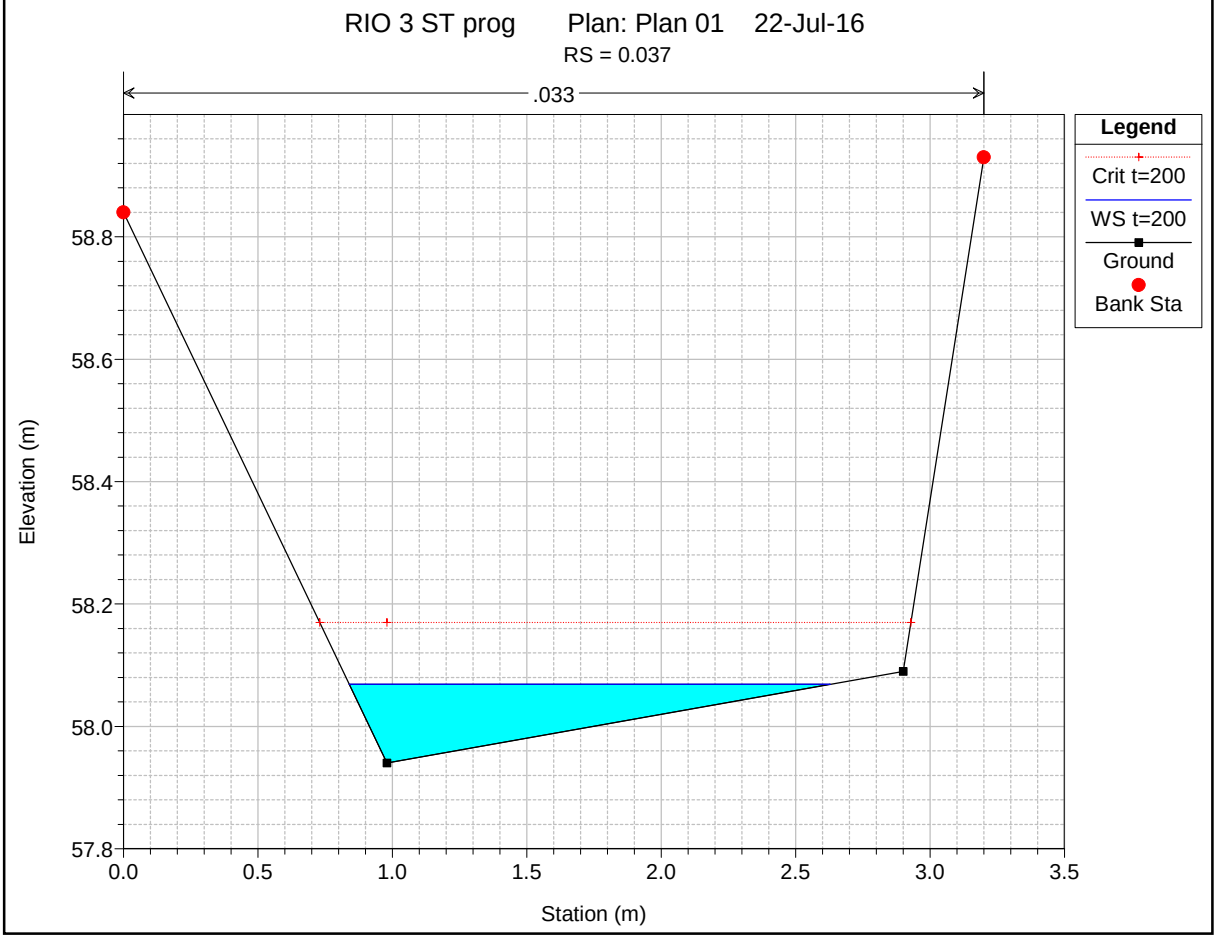

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.015
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
59.0
58.5
58.0
57.5
57.0
56.5
0
1
2
3
4
5
6
7
8

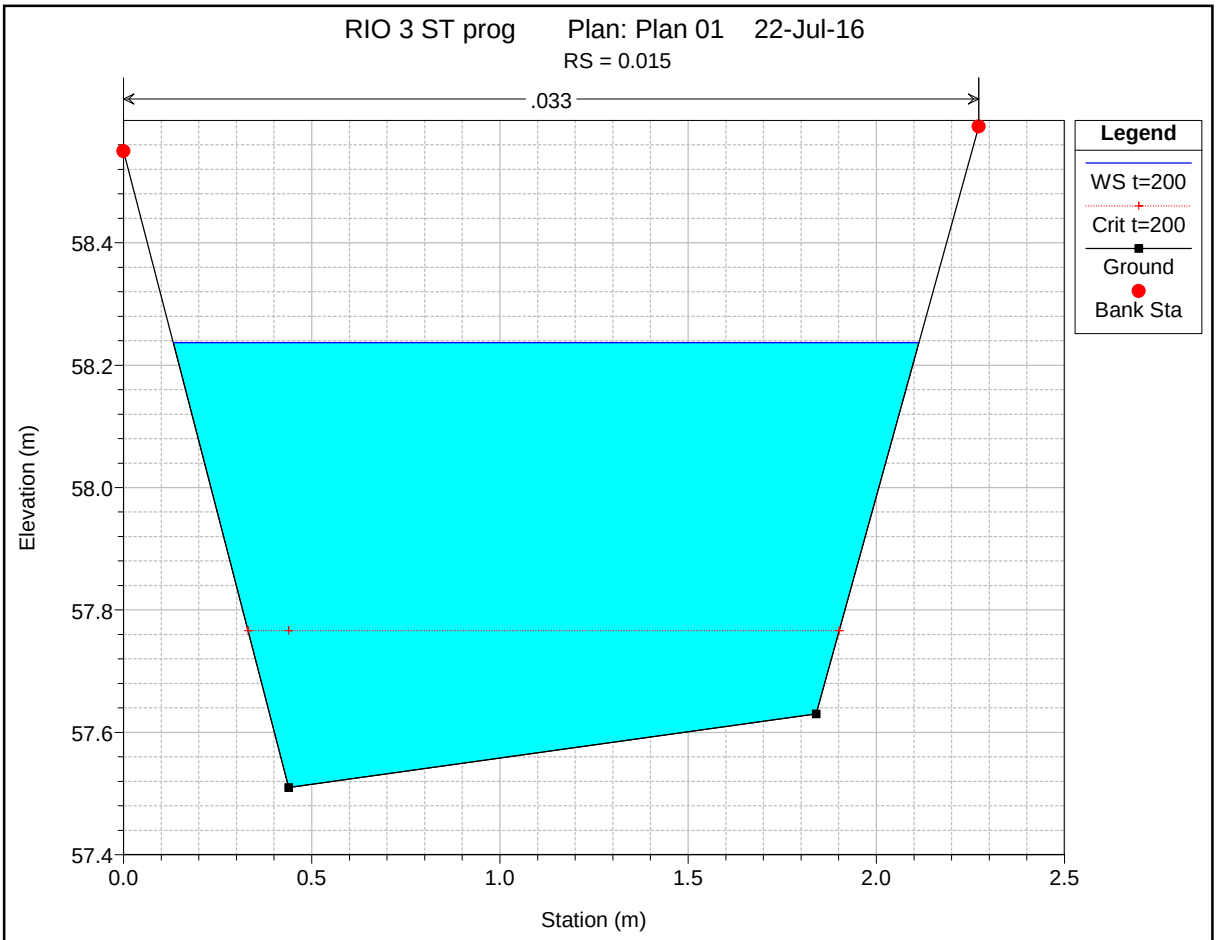

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.011
.033
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
58.0
57.8
57.6
57.4
57.2
57.0
56.8
56.6
0
1
2
3
4
5
6
7

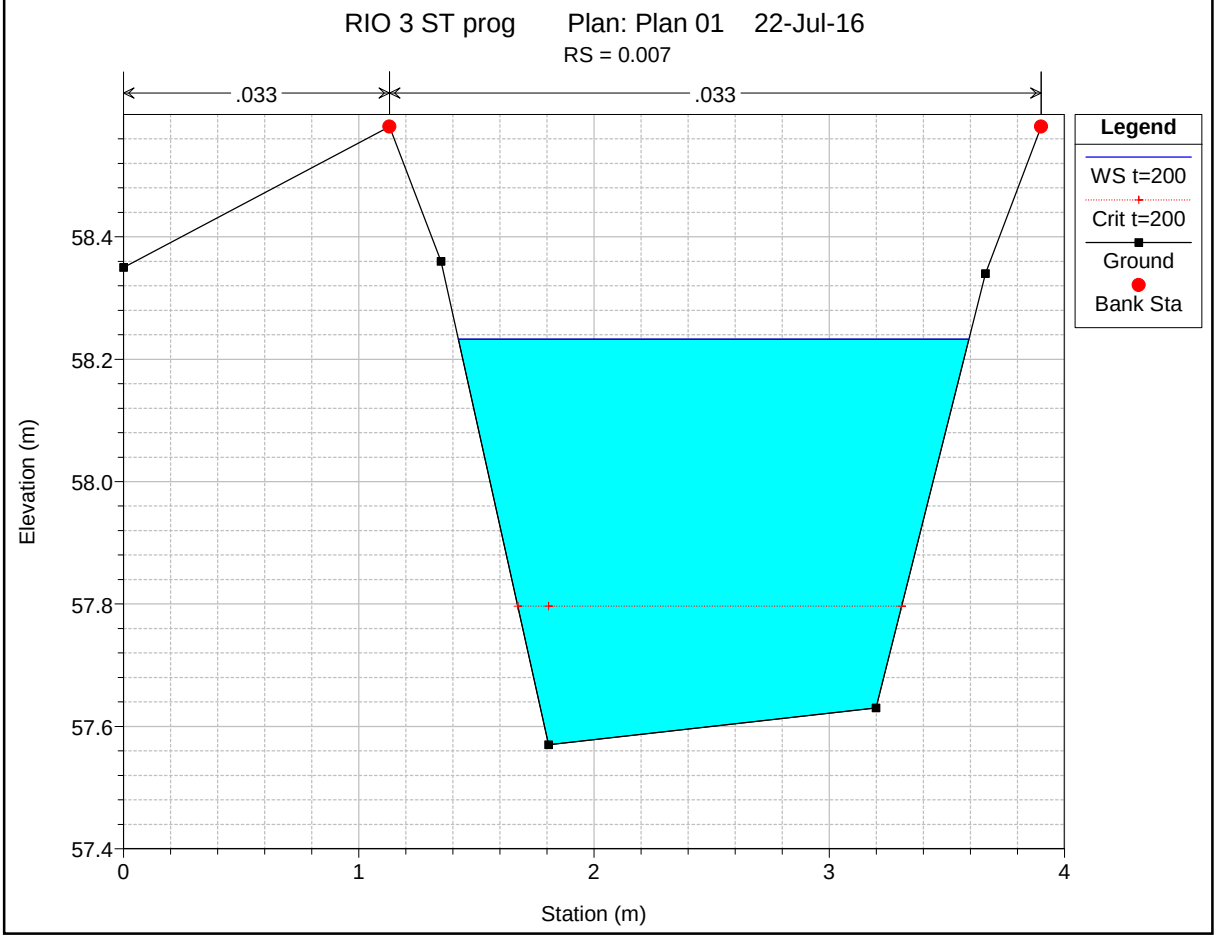

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.010
.033
.033
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.6
57.4
57.2
57.0
56.8
56.6
0
2
4
6
8
10
12
14
16
18


RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.000
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
Station (m)
57.6
57.4
57.2
57.0
56.8
56.6
56.4
0
2
4
6
8
10
12
14
16

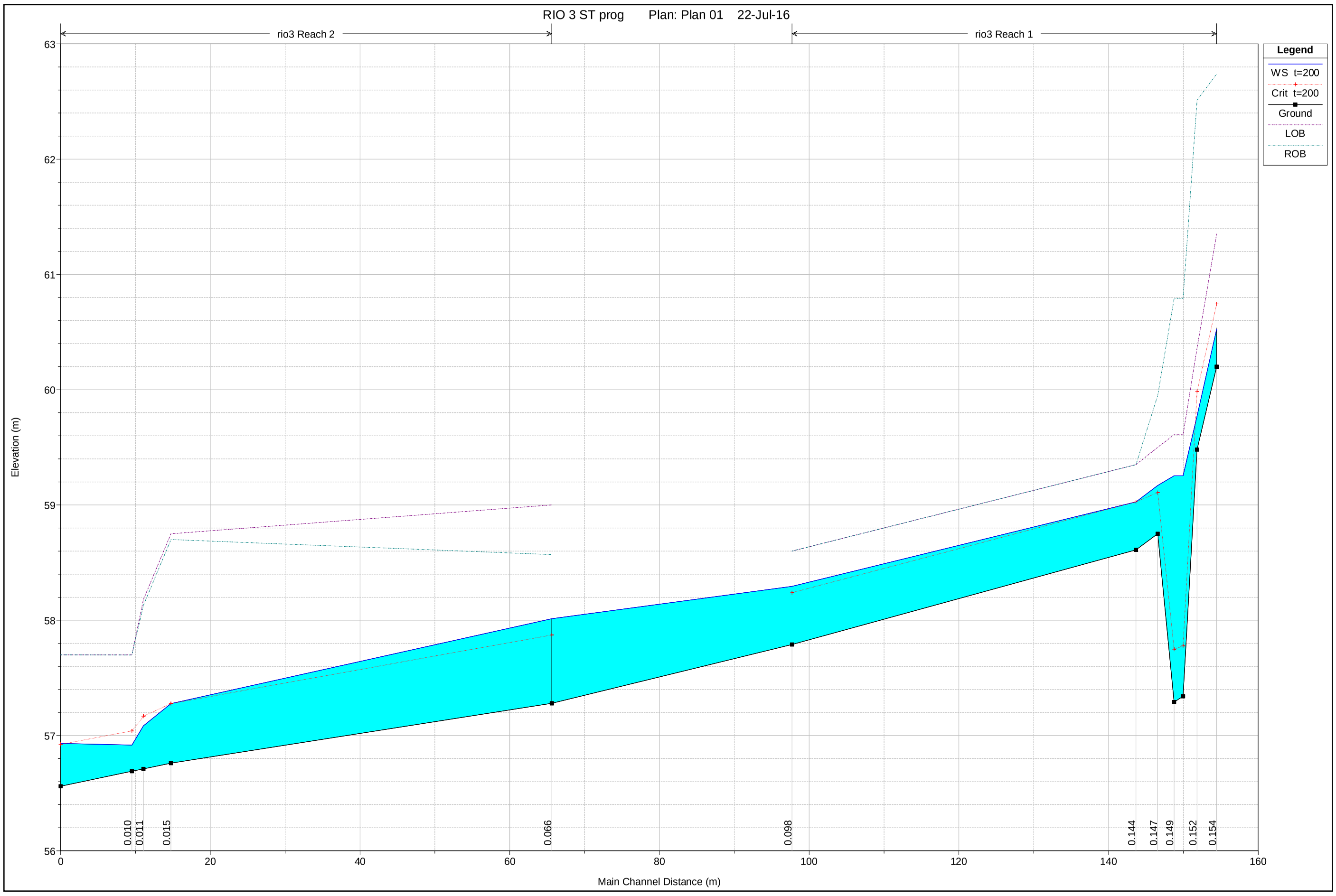

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.041
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
59.4
59.2
59.0
58.8
58.6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Station (m)


RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.037
.033
Legend
Crit t=200
WS t=200
Ground
Bank Sta
Elevation (m)
58.8
58.6
58.4
58.2
58.0
57.8
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)


RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.015
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.4
58.2
58.0
57.8
57.6
57.4
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

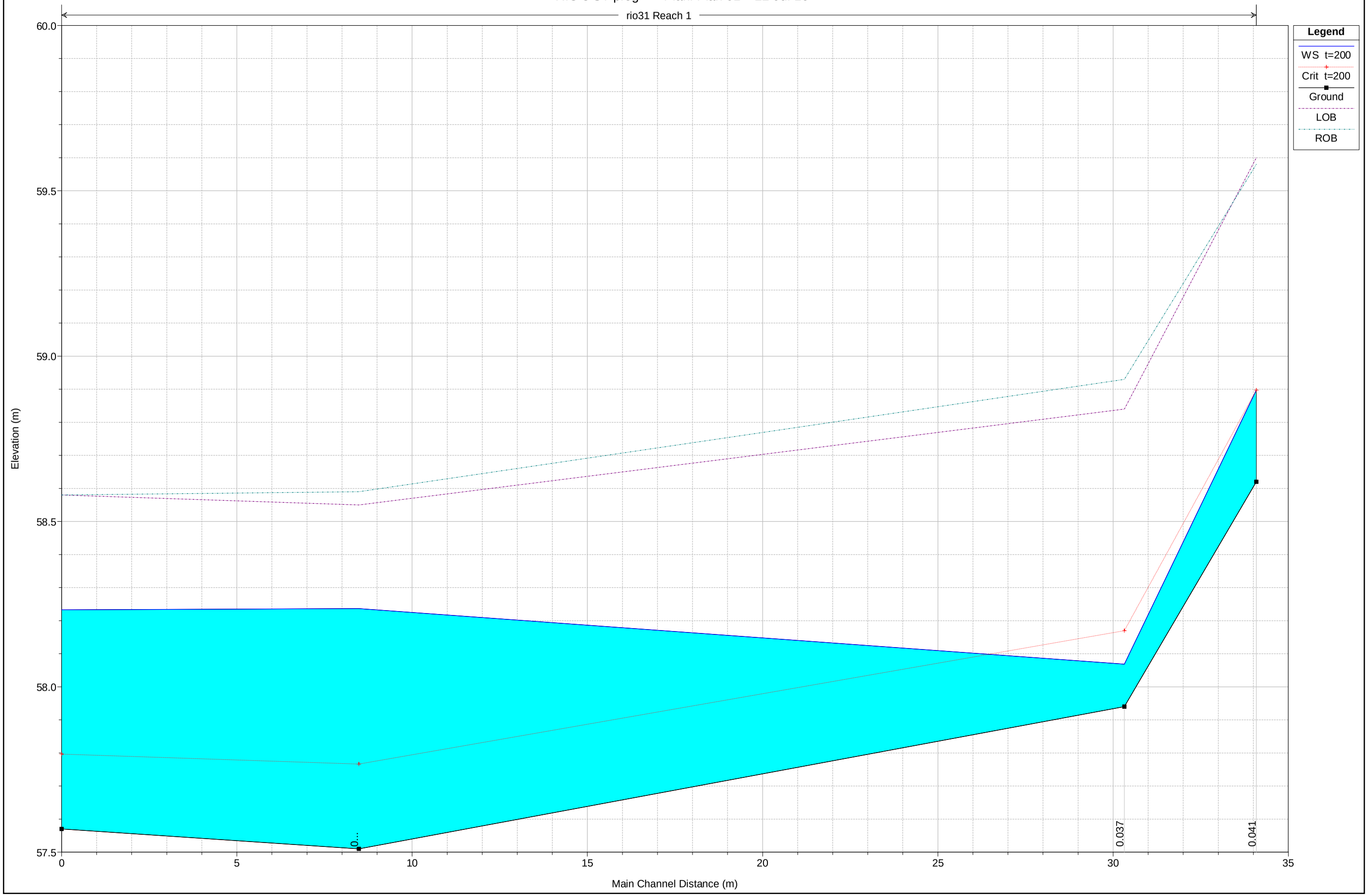

RIO 3 ST prog Plan: Plan 01 22-Jul-16
RS = 0.007
.033
.033
Legend
WS t=200
Crit t=200
Ground
Bank Sta
Elevation (m)
58.4
58.2
58.0
57.8
57.6
57.4
0
1
2
3
4
Station (m)

RIO 3 ST prog Plan: Plan 01 22-Jul-16



RIO 3 ST prog Plan: Plan 01 22-Jul-16

rio31 Reach 1



HEC-RAS Plan: Plan 01 Profile: t=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio31	Reach 1	0.041	t=200	0.40	58.62	58.90	58.90	1.27	0.70	59.60	0.68	59.58	0.08	1.02
rio31	Reach 1	0.037	t=200	0.40	57.94	58.07	58.17	3.48	0.77	58.84	0.86	58.93	0.62	4.38
rio31	Reach 1	0.015	t=200	0.40	57.51	58.24	57.77	0.35	0.31	58.55	0.35	58.59	0.01	0.15
rio31	Reach 1	0.007	t=200	0.40	57.57	58.23	57.80	0.36	0.35	58.58	0.35	58.58	0.01	0.16
rio3	Reach 1	0.154	t=200	1.80	60.20	60.53	60.74	5.32	0.83	61.35	2.21	62.74	1.44	4.22
rio3	Reach 1	0.152	t=200	1.80	59.48	59.77	59.98	4.82	0.59	60.36	2.74	62.51	1.19	4.04
rio3	Reach 1	0.150	t=200	1.80	57.34	59.25	57.78	0.26	0.36	59.61	1.54	60.79	0.00	0.07
rio3	Reach 1	0.149	t=200	1.80	57.29	59.25	57.75	0.25	0.36	59.61	1.54	60.79	0.00	0.07
rio3	Reach 1	0.147	t=200	1.80	58.75	59.17	59.11	1.25	0.33	59.50	0.78	59.95	0.08	0.74
rio3	Reach 1	0.144	t=200	1.80	58.61	59.03	59.03	1.86	0.32	59.35	0.32	59.35	0.18	1.01
rio3	Reach 1	0.098	t=200	1.80	57.79	58.29	58.24	1.45	0.31	58.60	0.31	58.60	0.11	0.80
rio3	Reach 2	0.066	t=200	2.52	57.28	58.01	57.87	1.44	0.99	59.00	0.56	58.57	0.11	0.66
rio3	Reach 2	0.015	t=200	2.52	56.76	57.28	57.28	2.19	1.47	58.75	1.42	58.70	0.25	1.00
rio3	Reach 2	0.011	t=200	2.52	56.71	57.08	57.17	2.55	1.09	58.18	1.04	58.13	0.33	1.37
rio3	Reach 2	0.010	t=200	2.52	56.69	56.92	57.04	2.83	0.78	57.70	0.78	57.70	0.41	2.19
rio3	Reach 2	0.000	t=200	2.52	56.56	56.93	56.92	1.55	0.77	57.70	0.77	57.70	0.12	0.97

HEC-RAS Plan: Plan 01 Profile: t=200

Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
			(m)	(m)	(m3/s)
Reach 1	0.098	t=200	58.29	58.40	1.80
Reach 1	0.007	t=200	58.23	58.24	0.40
Junction:	2				
Reach 2	0.066	t=200	58.01	58.12	2.52

VERIFICA IDRAULICA

RIO 4

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

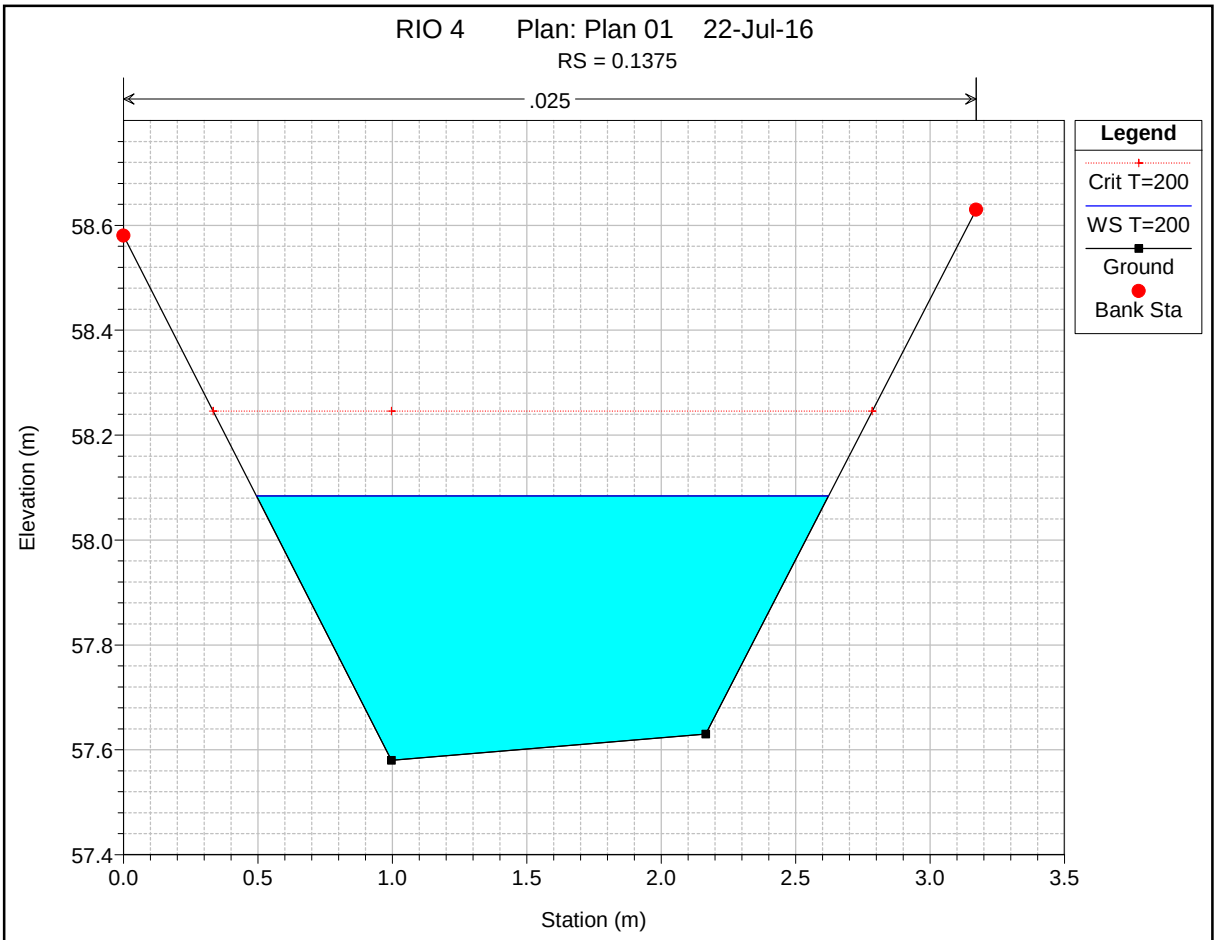
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

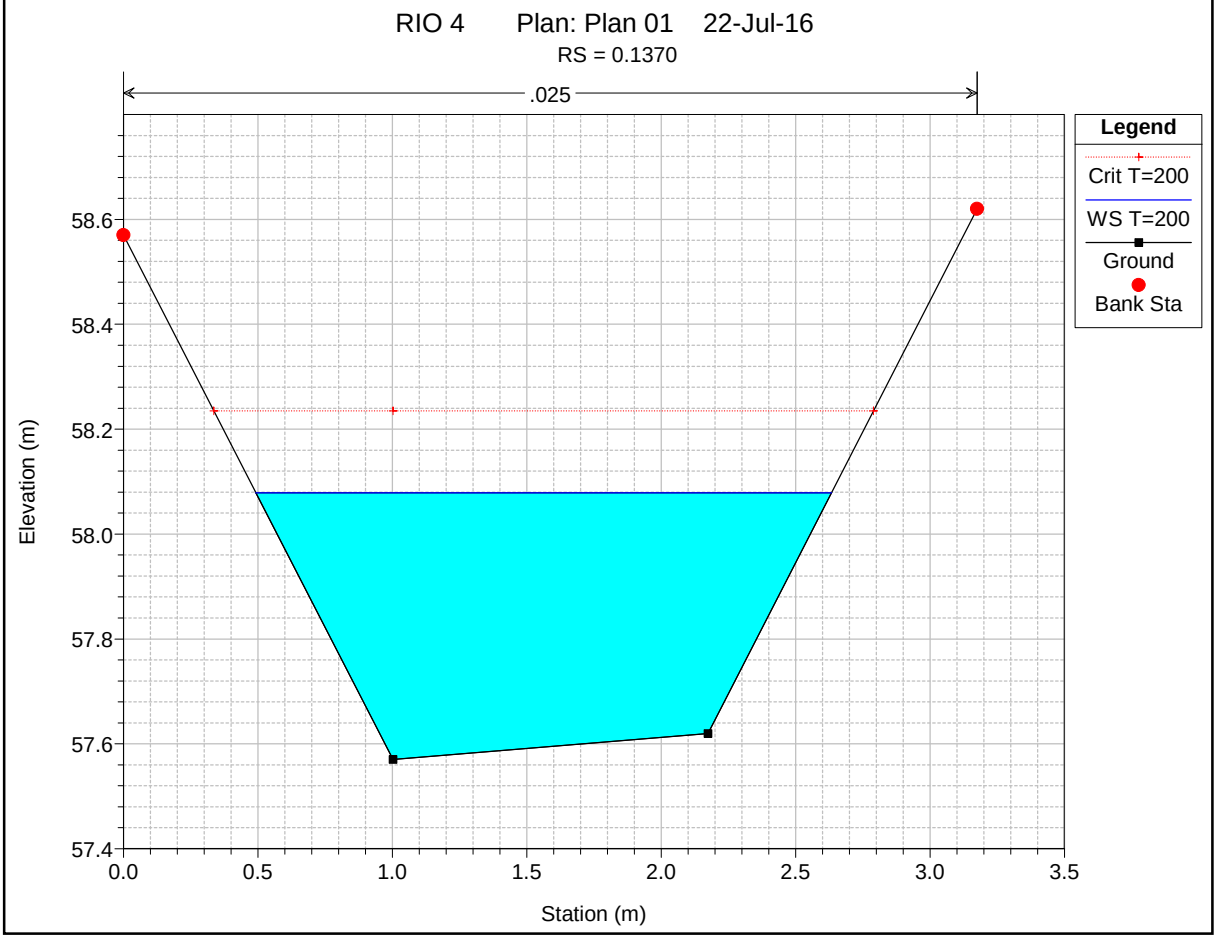
Vel Chnl = Velocità della corrente nel canale.

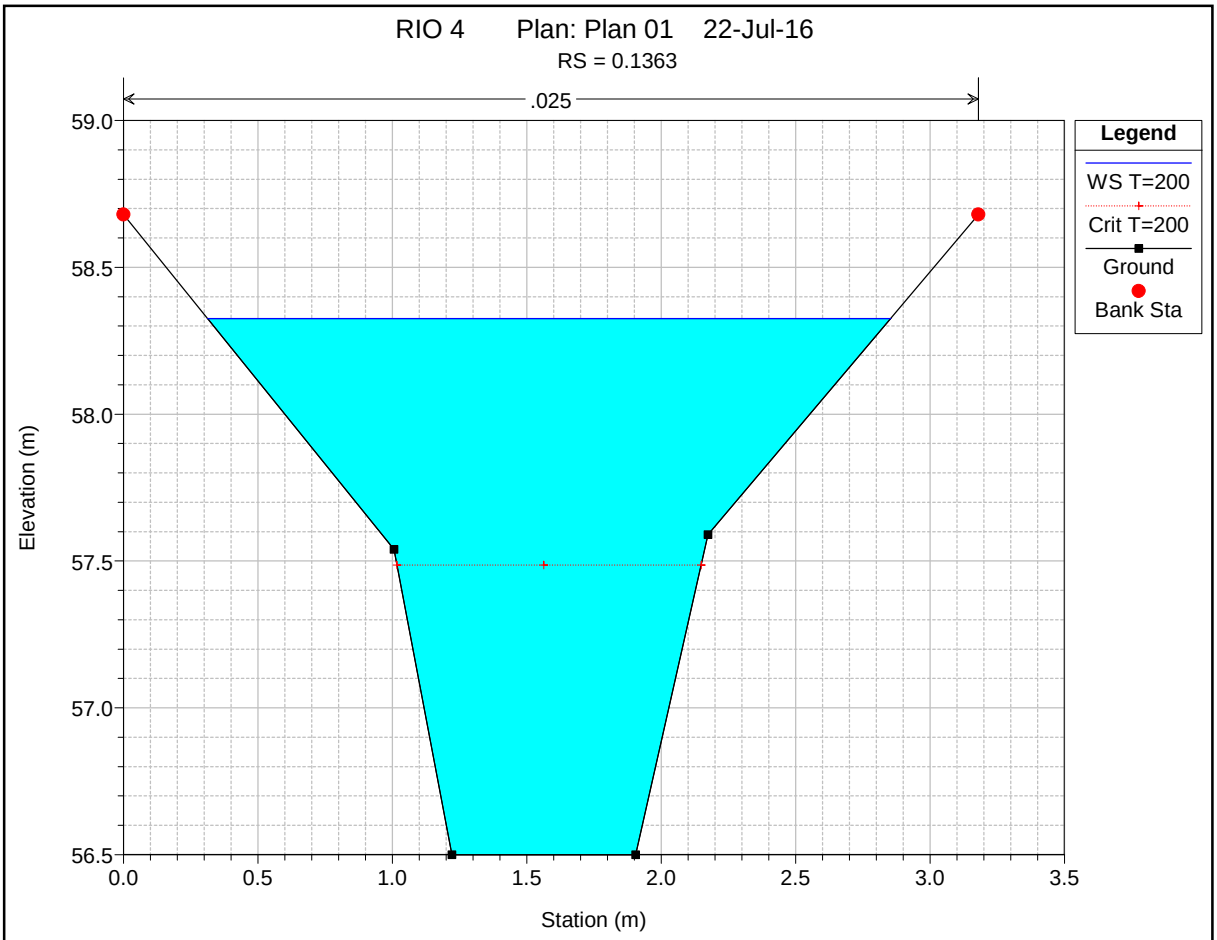
Froude = n° di froude della corrente.

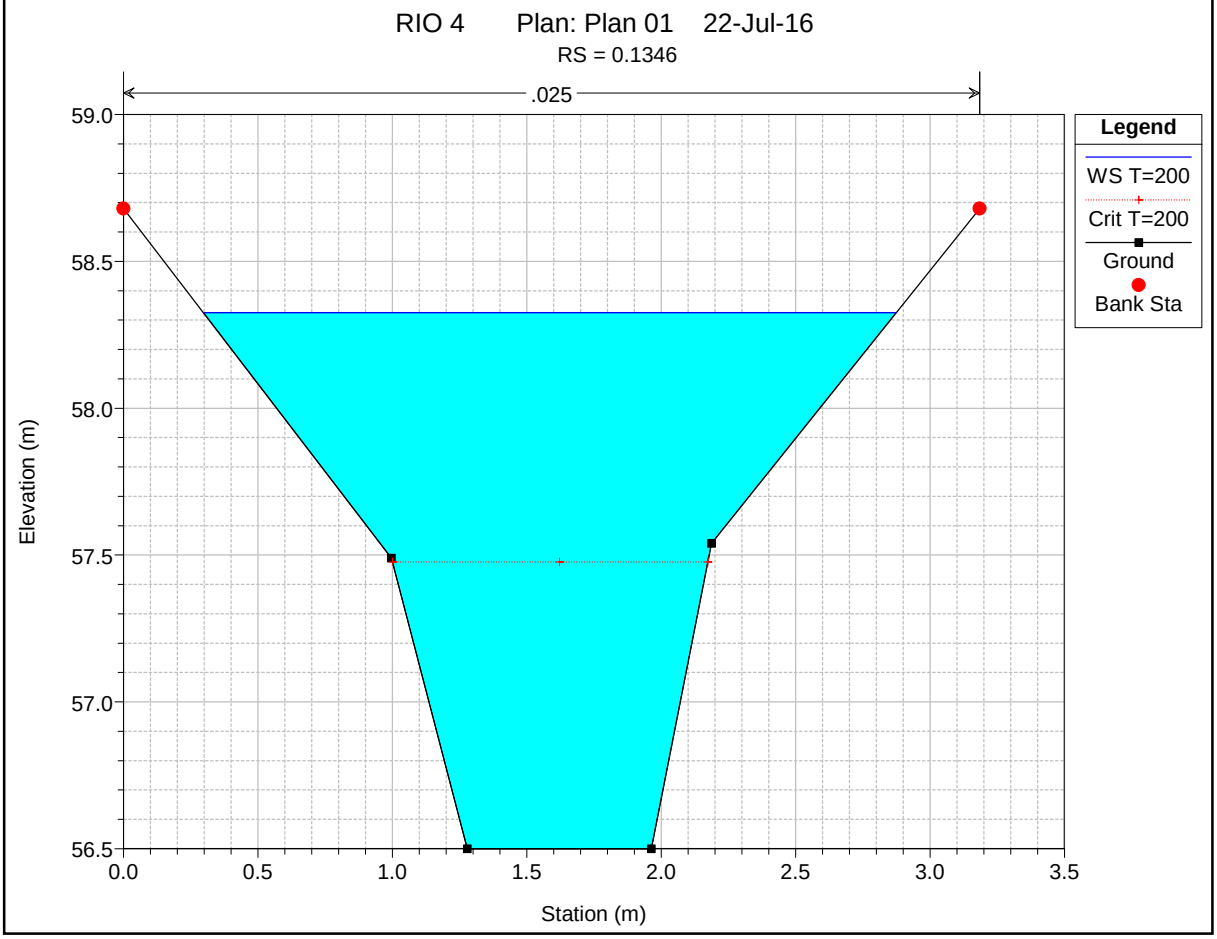
Vel. Head = $U^2/2g$.

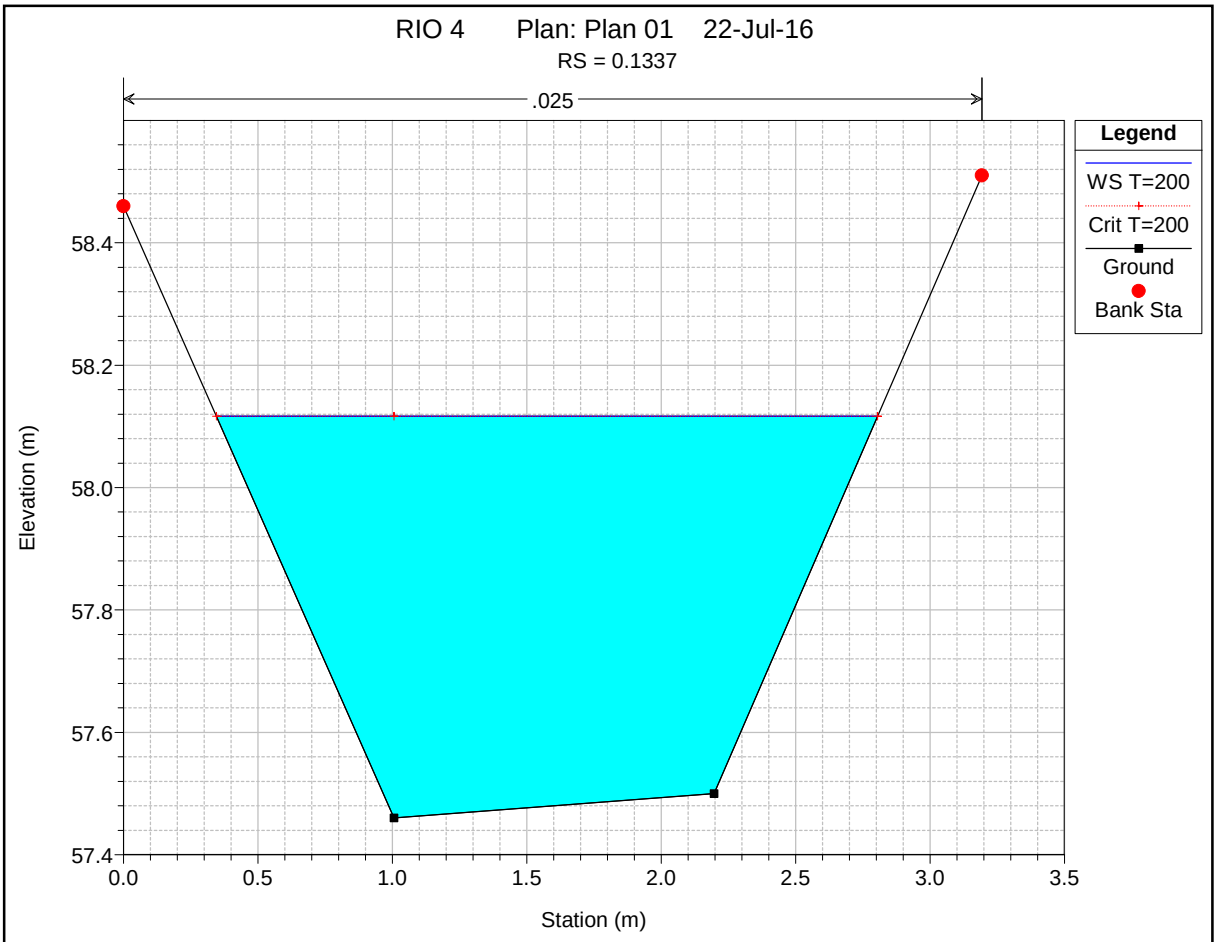
STATO di PROGETTO

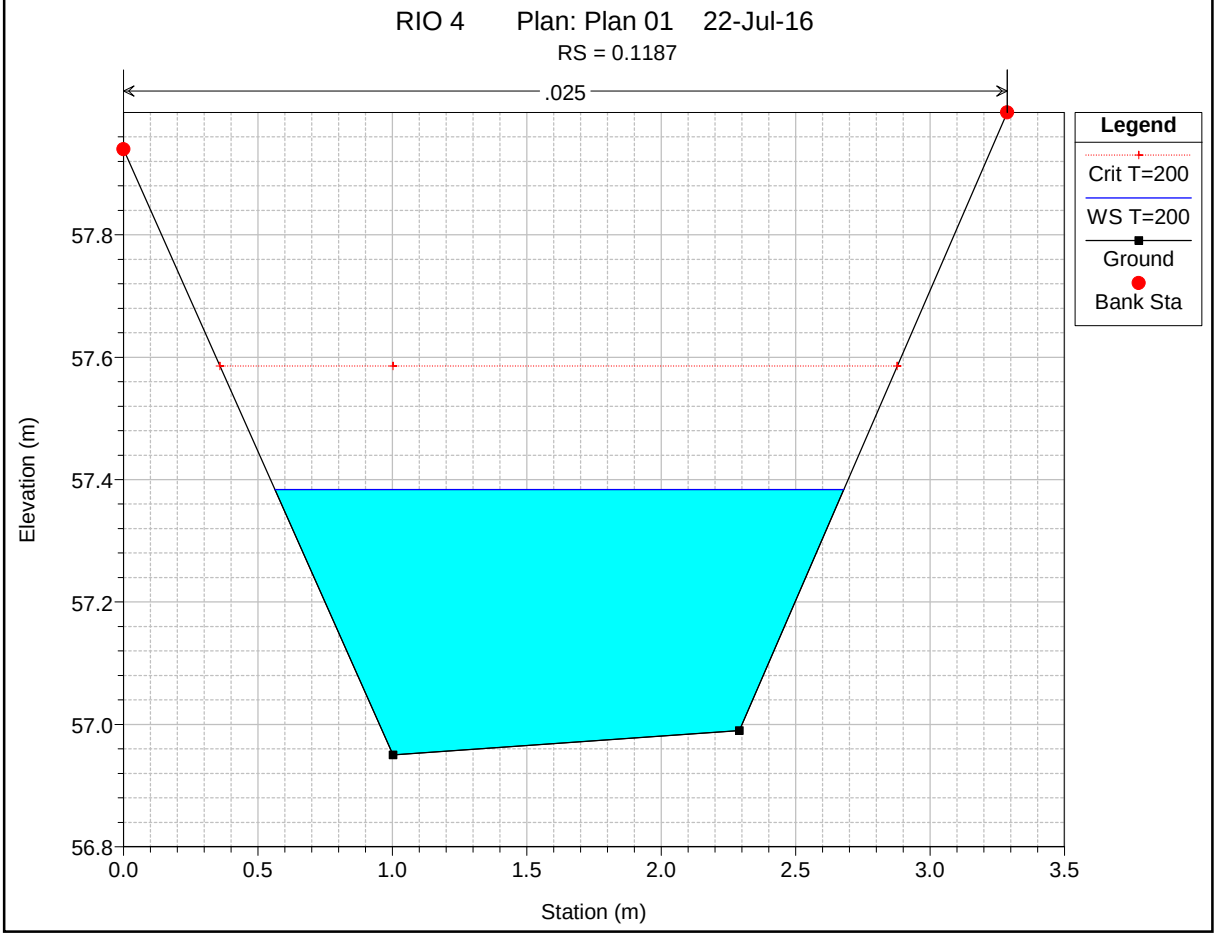

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1375
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.6
58.4
58.2
58.0
57.8
57.6
57.4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

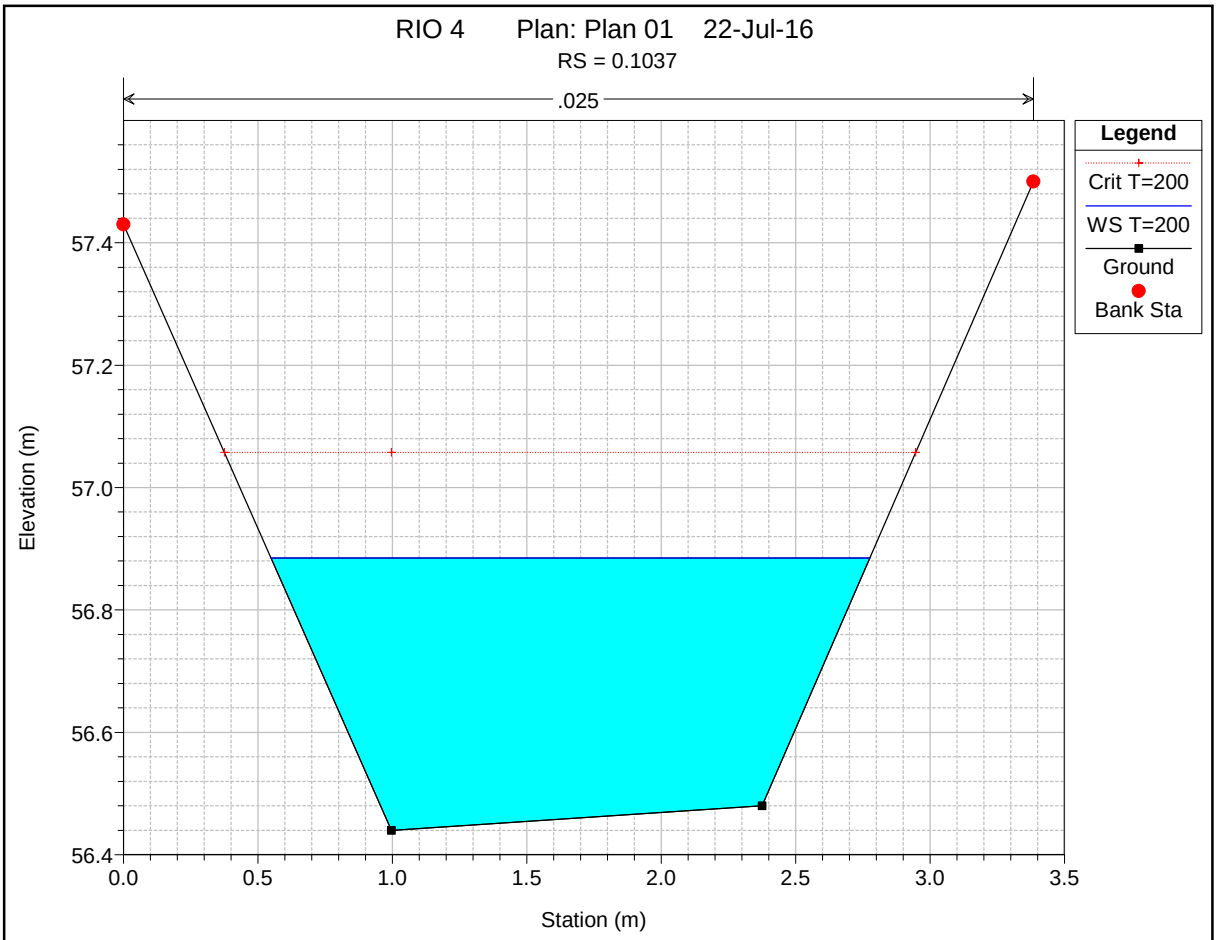

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1370
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.6
58.4
58.2
58.0
57.8
57.6
57.4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

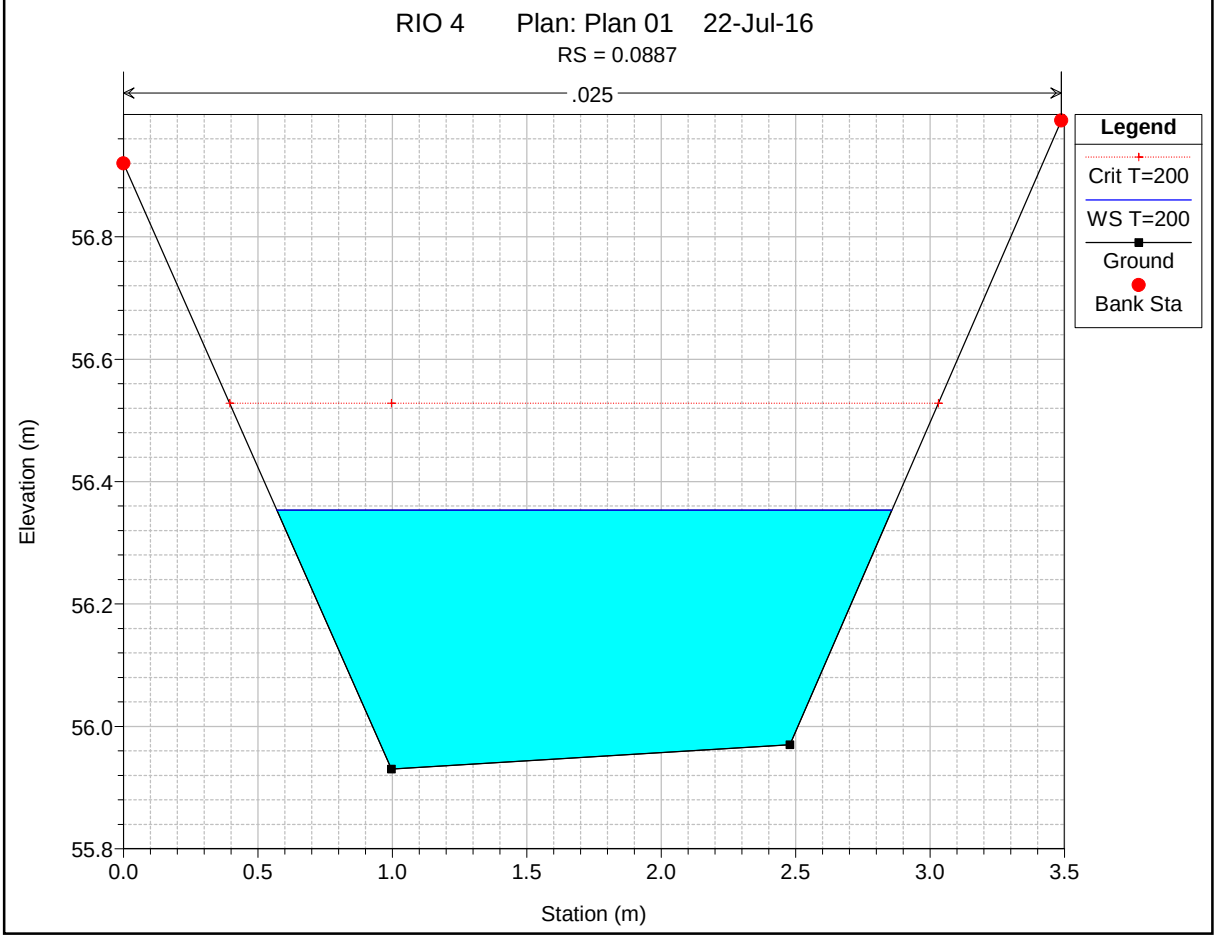

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1363
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
59.0
58.5
58.0
57.5
57.0
56.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

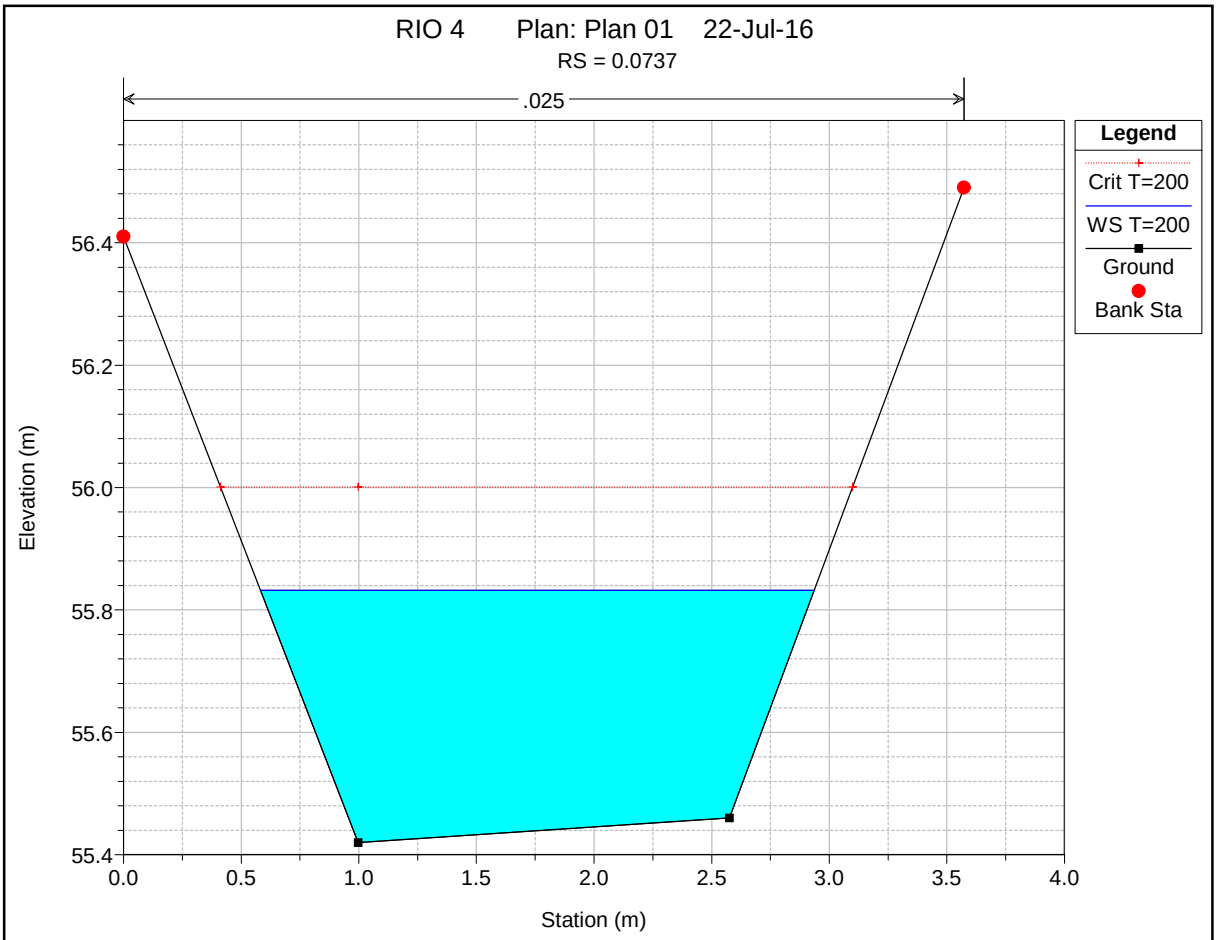

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1346
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
59.0
58.5
58.0
57.5
57.0
56.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

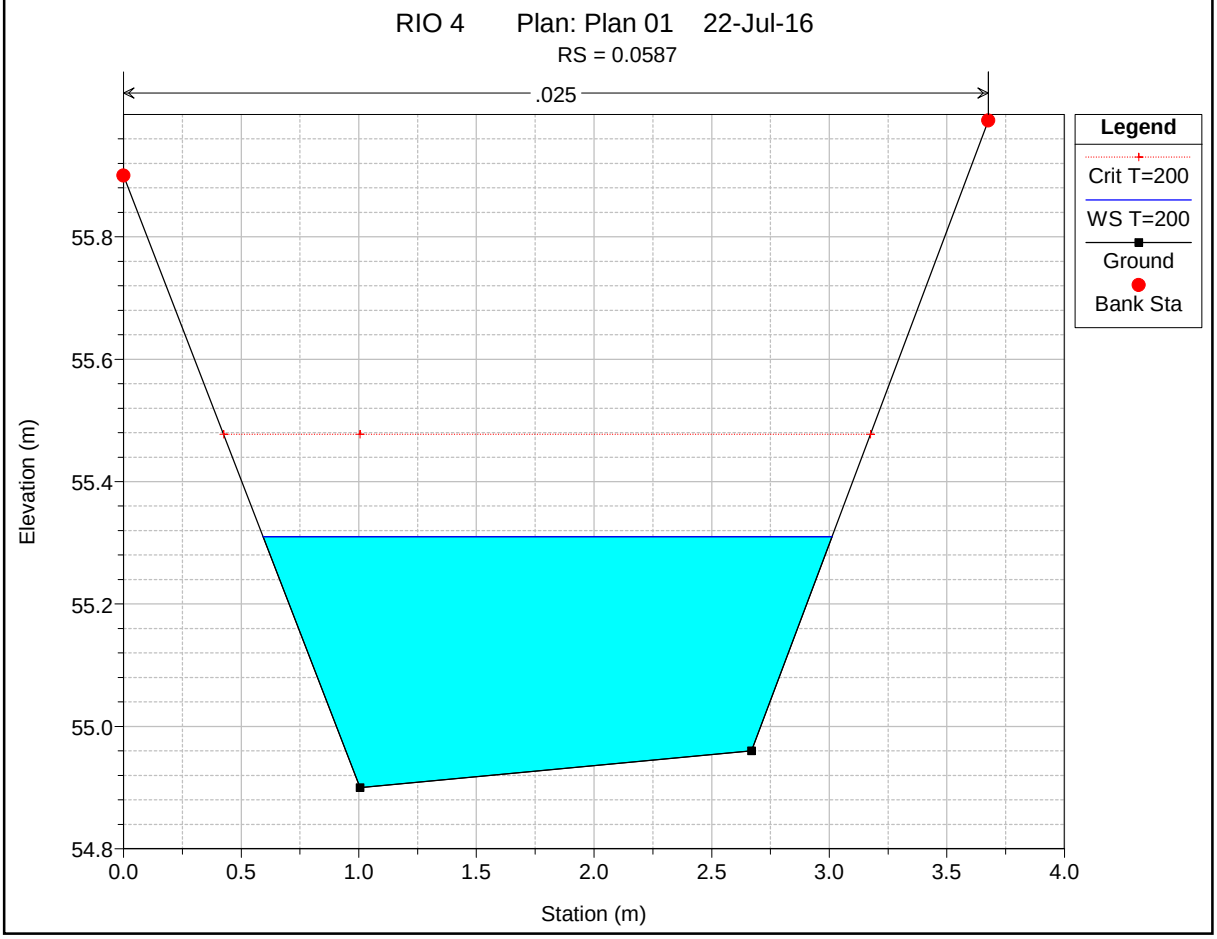

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1337
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
58.4
58.2
58.0
57.8
57.6
57.4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

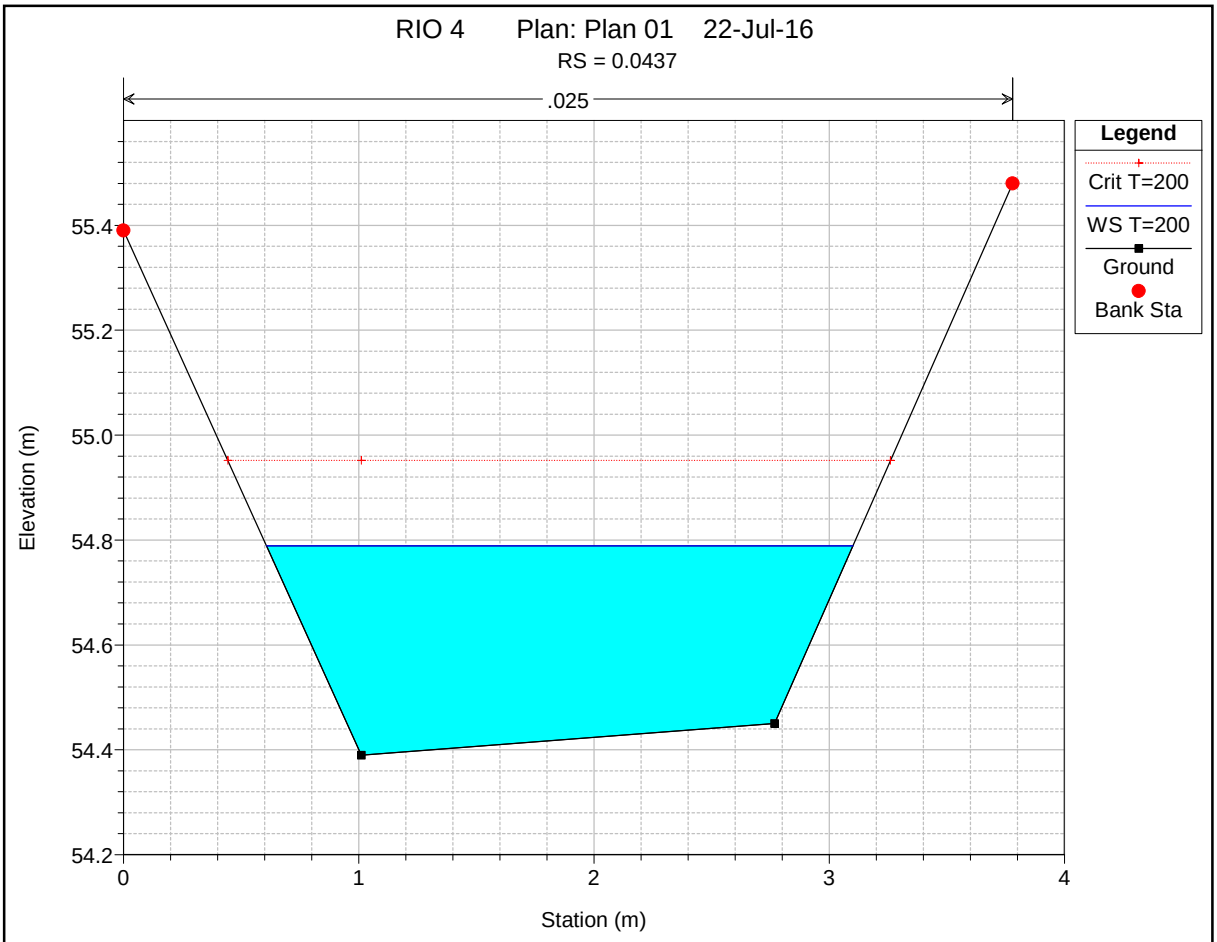

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1187
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
57.8
57.6
57.4
57.2
57.0
56.8
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

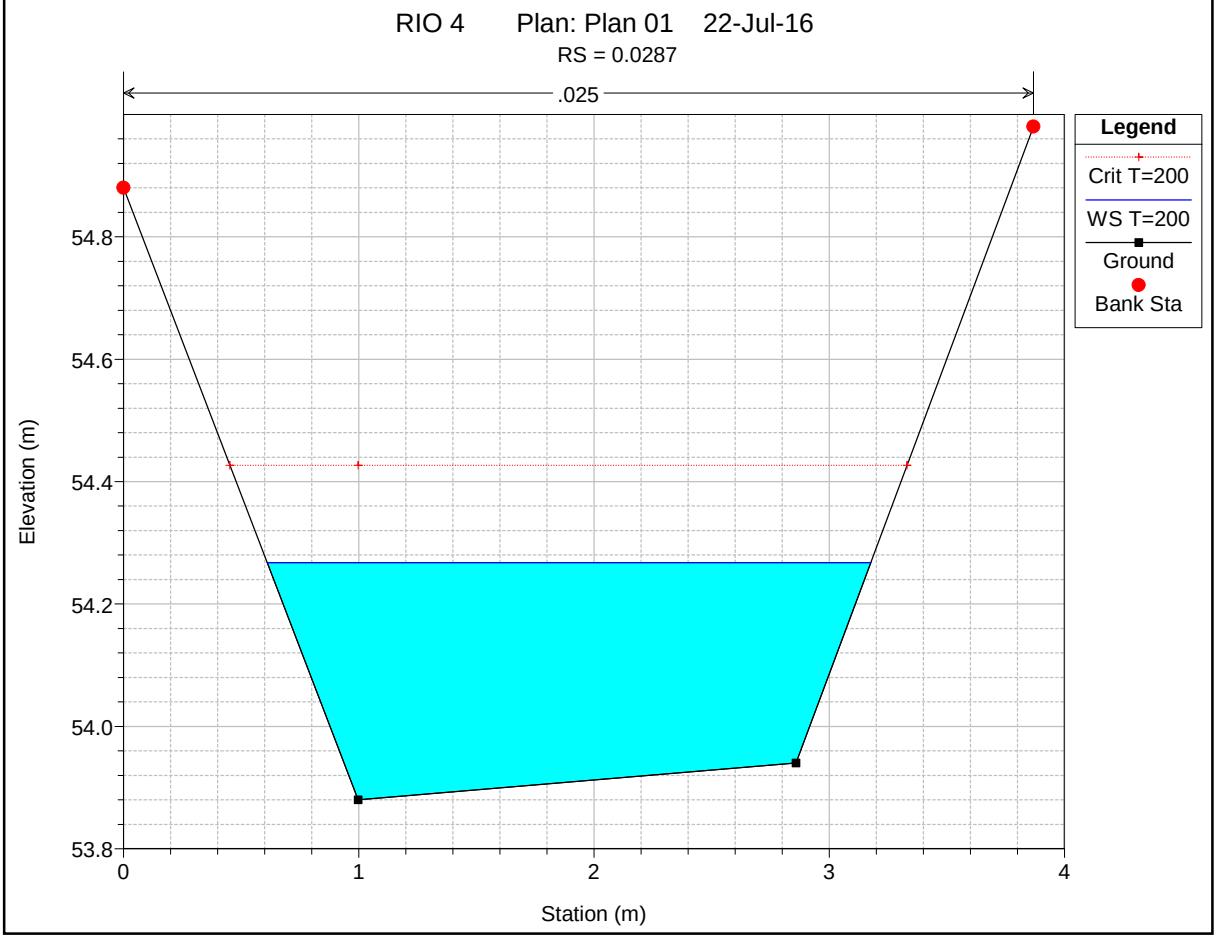

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.1037
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
57.4
57.2
57.0
56.8
56.6
56.4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

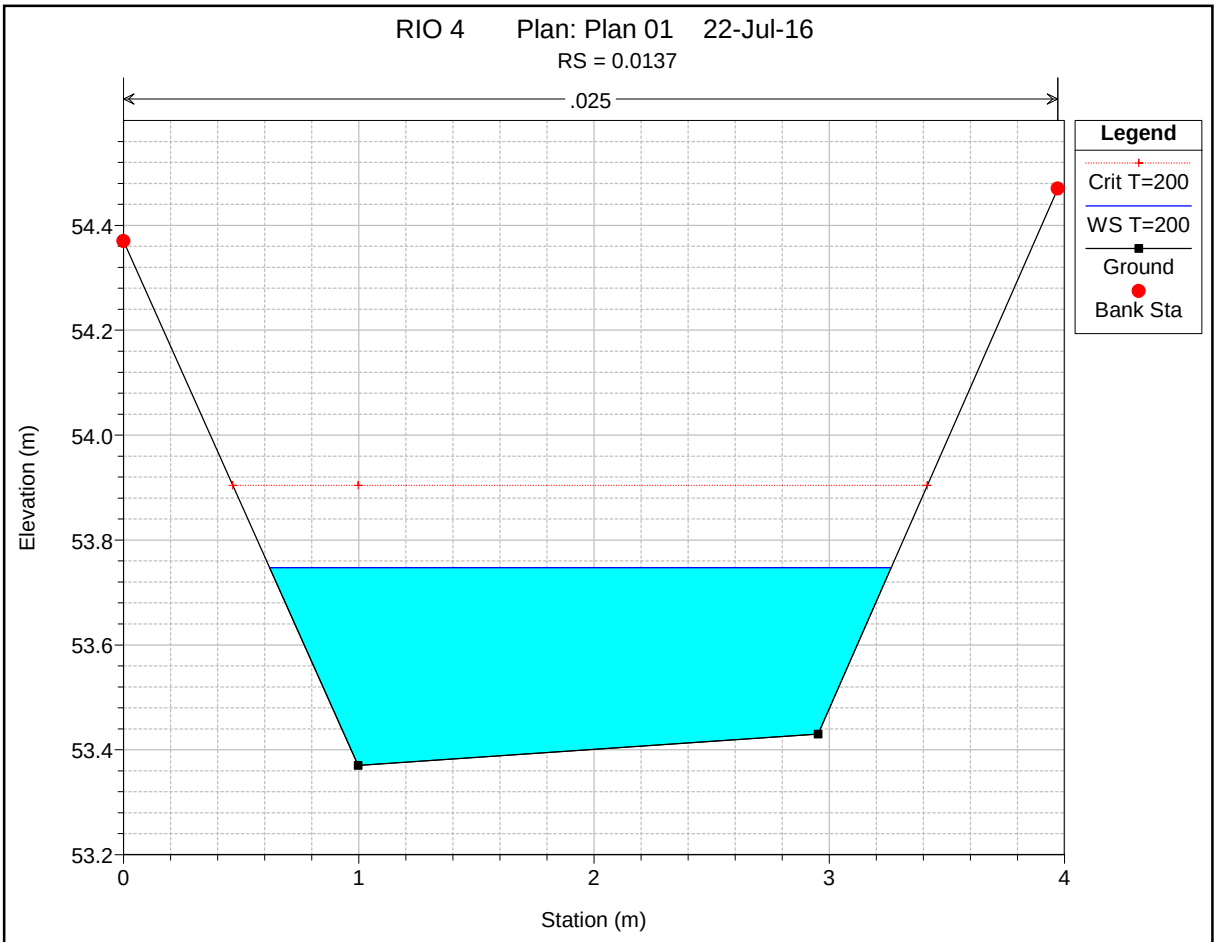

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0887
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
56.8
56.6
56.4
56.2
56.0
55.8
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

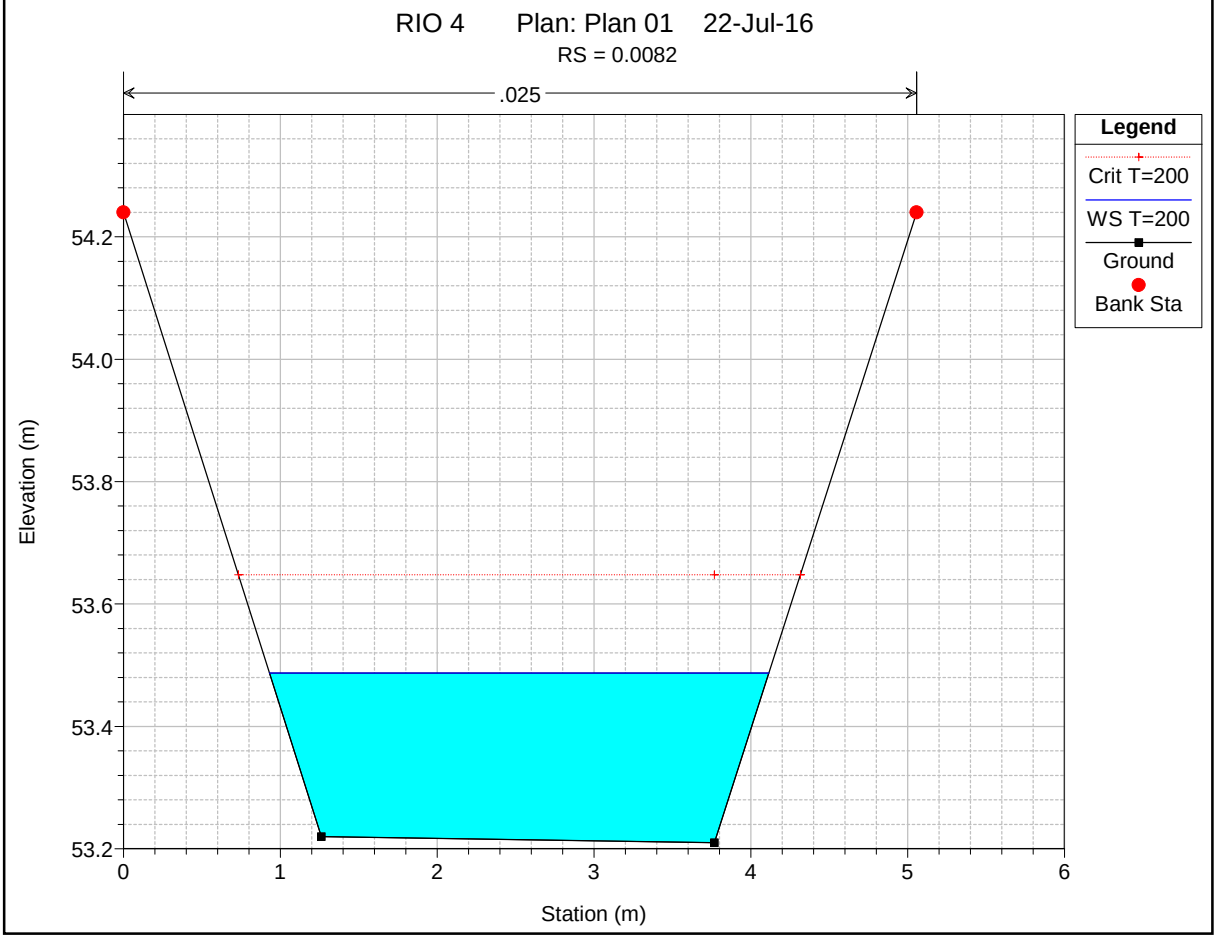

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0737
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
56.4
56.2
56.0
55.8
55.6
55.4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Station (m)

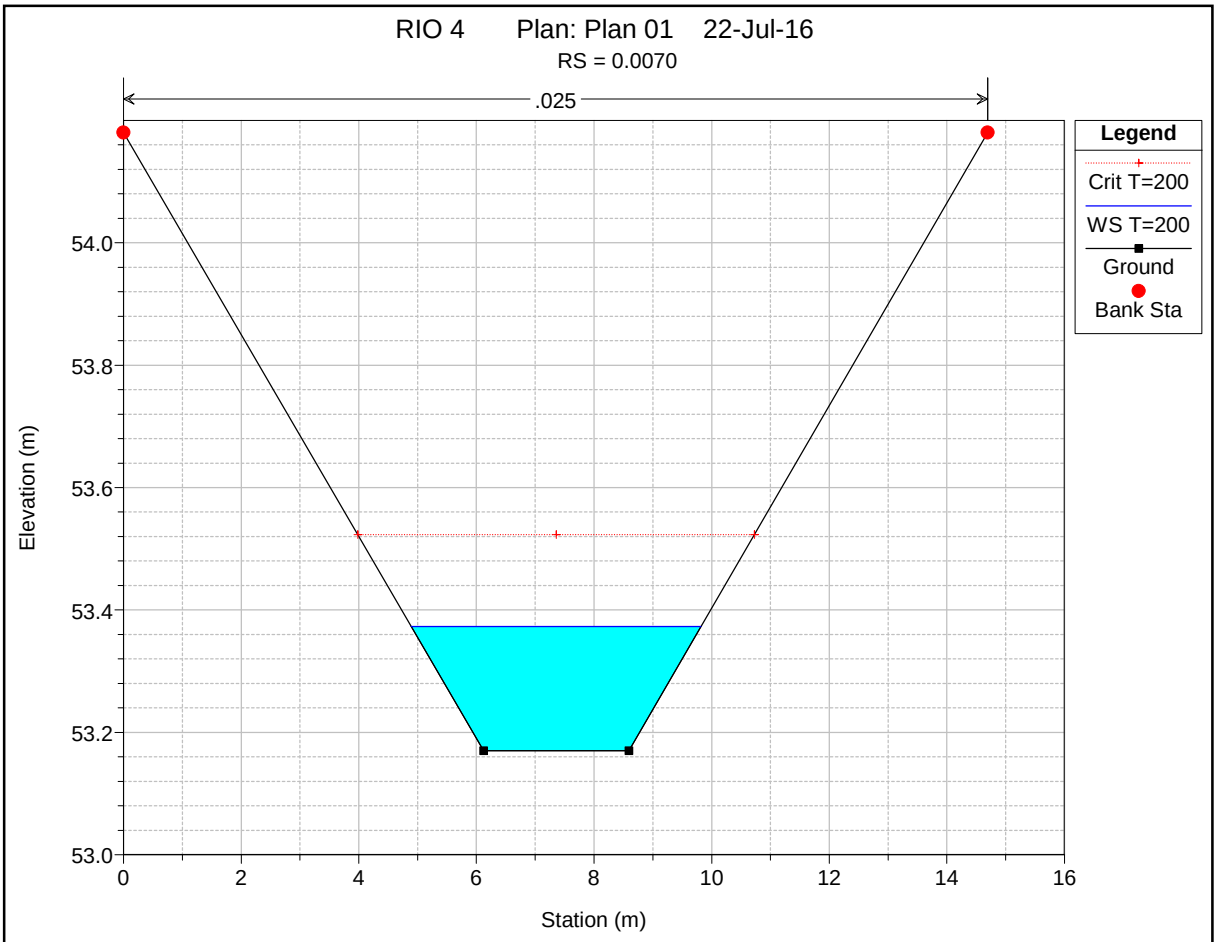

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0587
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
55.8
55.6
55.4
55.2
55.0
54.8
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Station (m)

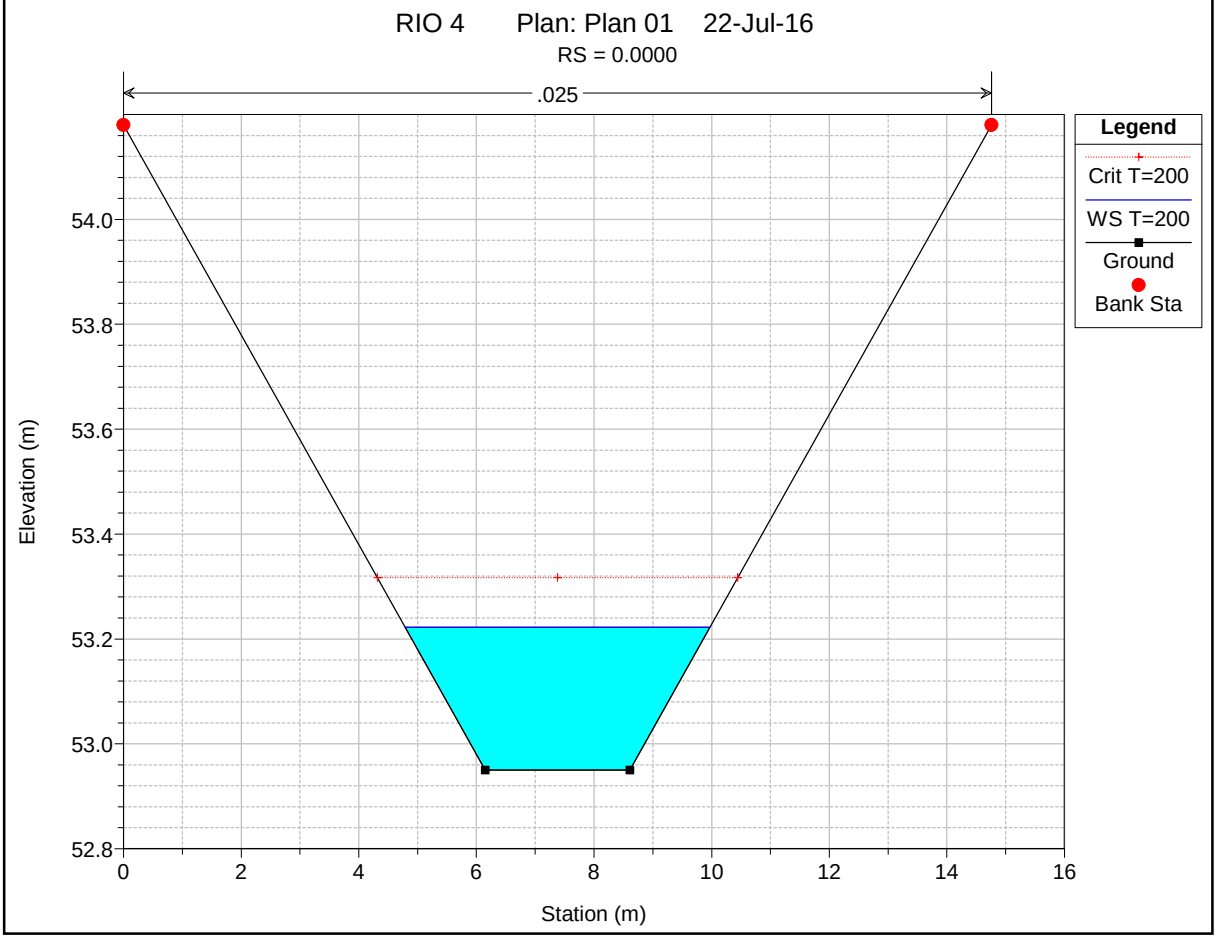

RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0437
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
55.4
55.2
55.0
54.8
54.6
54.4
54.2
0
1
2
3
4
Station (m)


RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0287
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
54.8
54.6
54.4
54.2
54.0
53.8
0
1
2
3
4
Station (m)


RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0137
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
54.4
54.2
54.0
53.8
53.6
53.4
53.2
0
1
2
3
4
Station (m)


RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0082
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
54.2
54.0
53.8
53.6
53.4
53.2
0
1
2
3
4
5
6
Station (m)


RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0070
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
54.0
53.8
53.6
53.4
53.2
53.0
0
2
4
6
8
10
12
14
16


RIO 4 Plan: Plan 01 22-Jul-16
RS = 0.0000
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
54.0
53.8
53.6
53.4
53.2
53.0
52.8
0
2
4
6
8
10
12
14
16

RIO 4 Plan: Plan 01 22-Jul-16

rio4 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

59
58
57
56
55
54
53
52

0.0070 0.0082 0.0137 0.0287 0.0437 0.0587 0.0737 0.0887 0.1037 0.1187 0.1337 0.1363 0.1375

0 20 40 60 80 100 120 140

Main Channel Distance (m)

HEC-RAS Plan: Plan 01 River: rio4 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.1375	T=200	2.52	57.58	58.08	58.25	3.19	0.50	58.58	0.55	58.63	0.52	1.67
Reach 1	0.1370	T=200	2.52	57.57	58.08	58.23	3.14	0.49	58.57	0.54	58.62	0.50	1.64
Reach 1	0.1363	T=200	2.52	56.50	58.33	57.49	1.05	0.35	58.68	0.35	58.68	0.06	0.35
Reach 1	0.1346	T=200	2.52	56.50	58.33	57.48	1.02	0.35	58.68	0.35	58.68	0.05	0.33
Reach 1	0.1337	T=200	2.52	57.46	58.12	58.12	2.17	0.34	58.46	0.39	58.51	0.24	1.01
Reach 1	0.1187	T=200	2.52	56.95	57.38	57.59	3.58	0.56	57.94	0.62	58.00	0.65	1.98
Reach 1	0.1037	T=200	2.52	56.44	56.88	57.06	3.29	0.55	57.43	0.62	57.50	0.55	1.79
Reach 1	0.0887	T=200	2.52	55.93	56.35	56.53	3.31	0.57	56.92	0.64	56.99	0.56	1.83
Reach 1	0.0737	T=200	2.52	55.42	55.83	56.00	3.27	0.58	56.41	0.66	56.49	0.54	1.82
Reach 1	0.0587	T=200	2.52	54.90	55.31	55.48	3.24	0.59	55.90	0.68	55.99	0.54	1.83
Reach 1	0.0437	T=200	2.52	54.39	54.79	54.95	3.21	0.60	55.39	0.69	55.48	0.53	1.83
Reach 1	0.0287	T=200	2.52	53.88	54.27	54.43	3.18	0.61	54.88	0.71	54.98	0.52	1.83
Reach 1	0.0137	T=200	2.52	53.37	53.75	53.90	3.15	0.62	54.37	0.72	54.47	0.51	1.83
Reach 1	0.0082	T=200	2.52	53.21	53.49	53.65	3.25	0.75	54.24	0.75	54.24	0.54	2.11
Reach 1	0.0070	T=200	2.52	53.17	53.37	53.52	3.35	0.81	54.18	0.81	54.18	0.57	2.74
Reach 1	0.0000	T=200	2.52	52.95	53.22	53.32	2.42	0.96	54.18	0.96	54.18	0.30	1.72

VERIFICA IDRAULICA

RIO 5

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

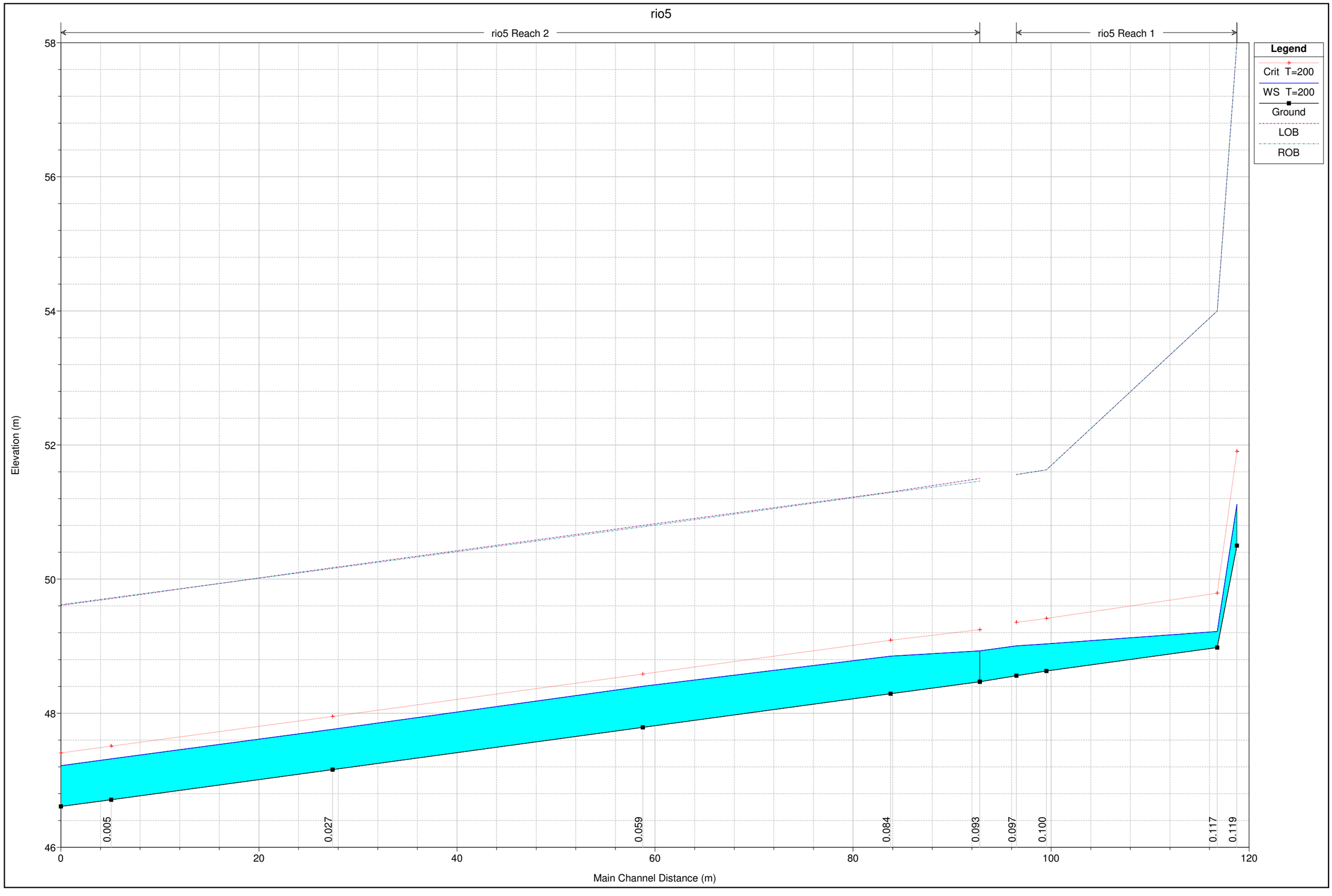
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

Vel Chnl = Velocità della corrente nel canale.

Froude = n° di froude della corrente.

Vel. Head = $U^2/2g$.

STATO di PROGETTO


rio5
rio5 Reach 2
rio5 Reach 1
Legend
Crit T=200
WS T=200
Ground
LOB
ROB
Elevation (m)
58
56
54
52
50
48
46
0
20
40
60
80
100
120
Main Channel Distance (m)
0.005
0.027
0.059
0.084
0.093
0.097
0.100
0.117
0.119

rio5

rio5.1 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

70

65

60

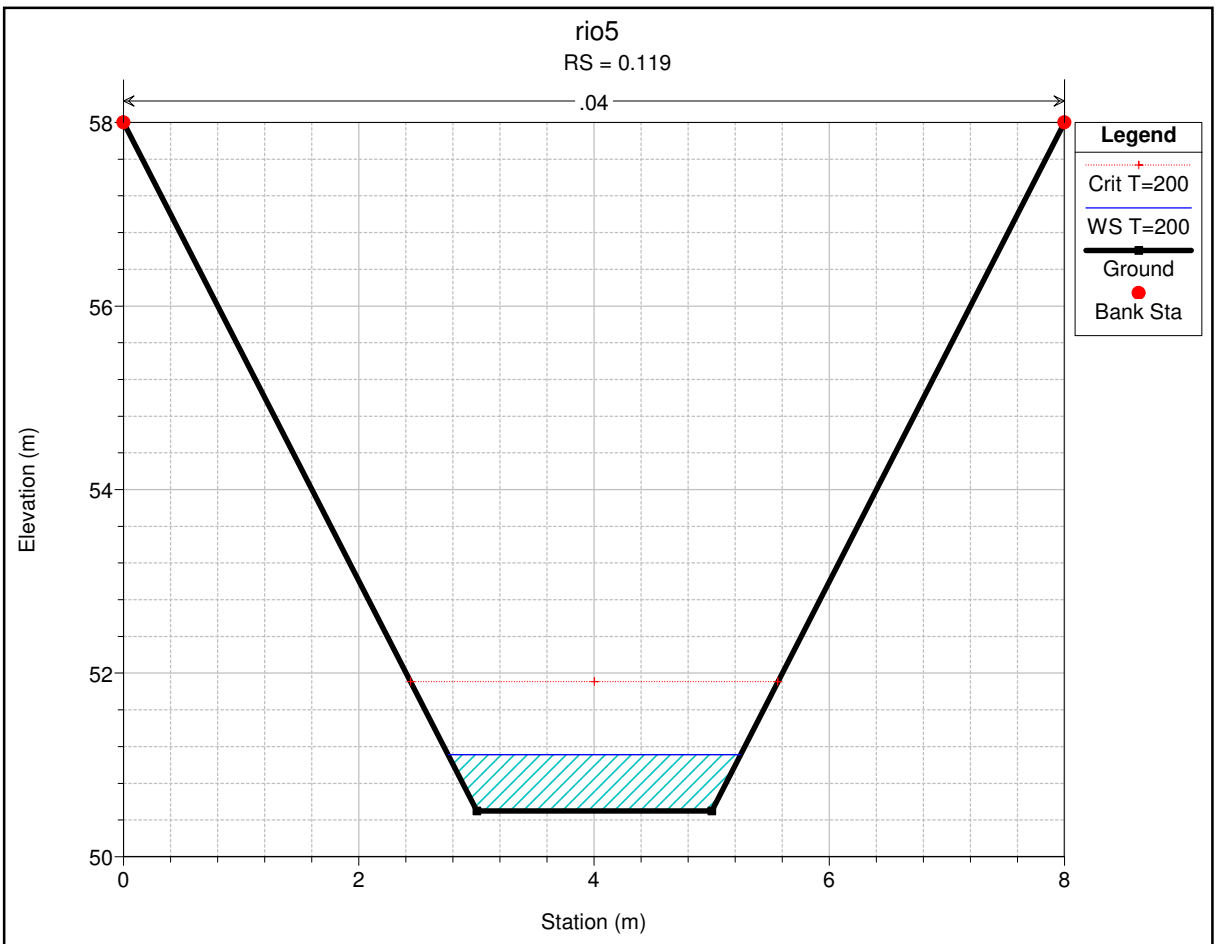
55

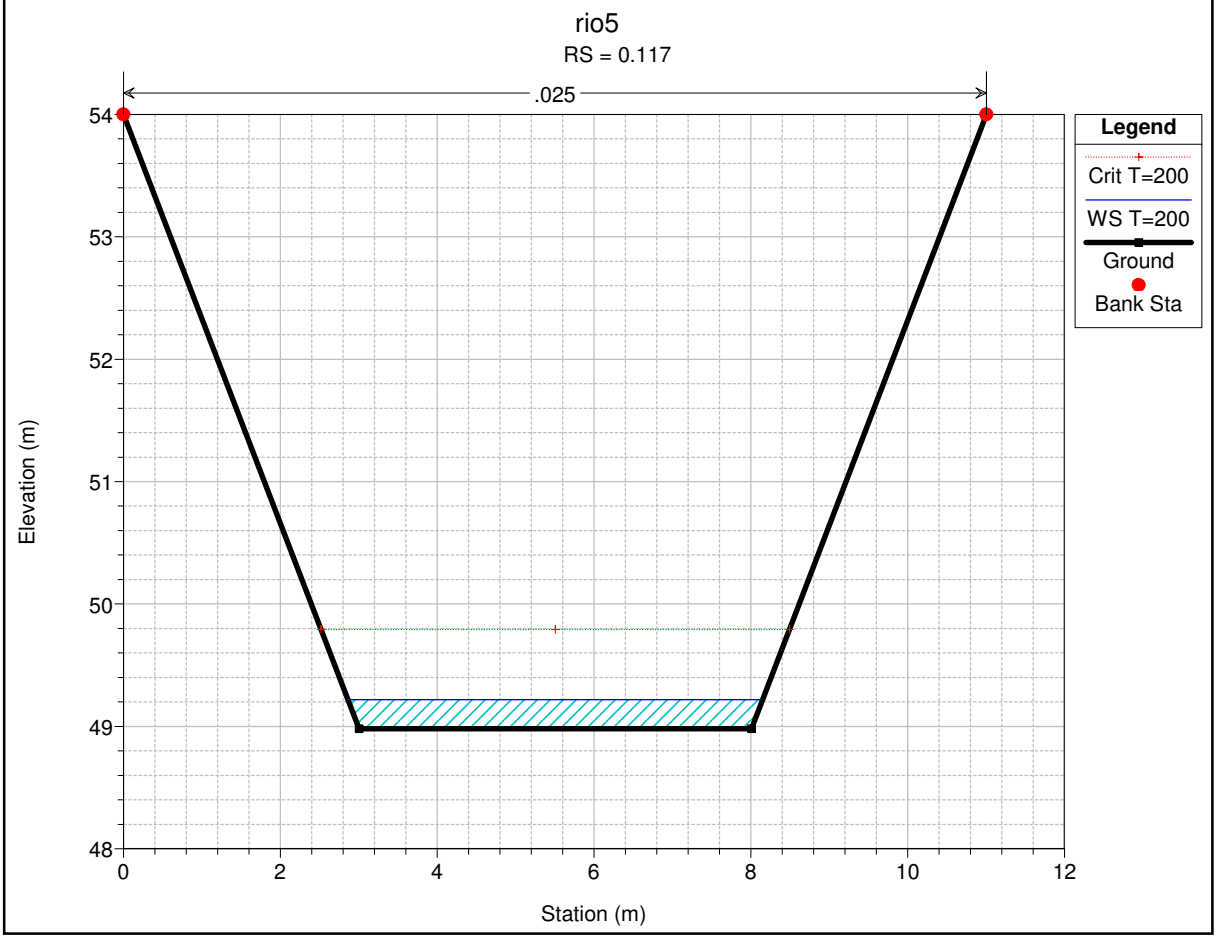
50

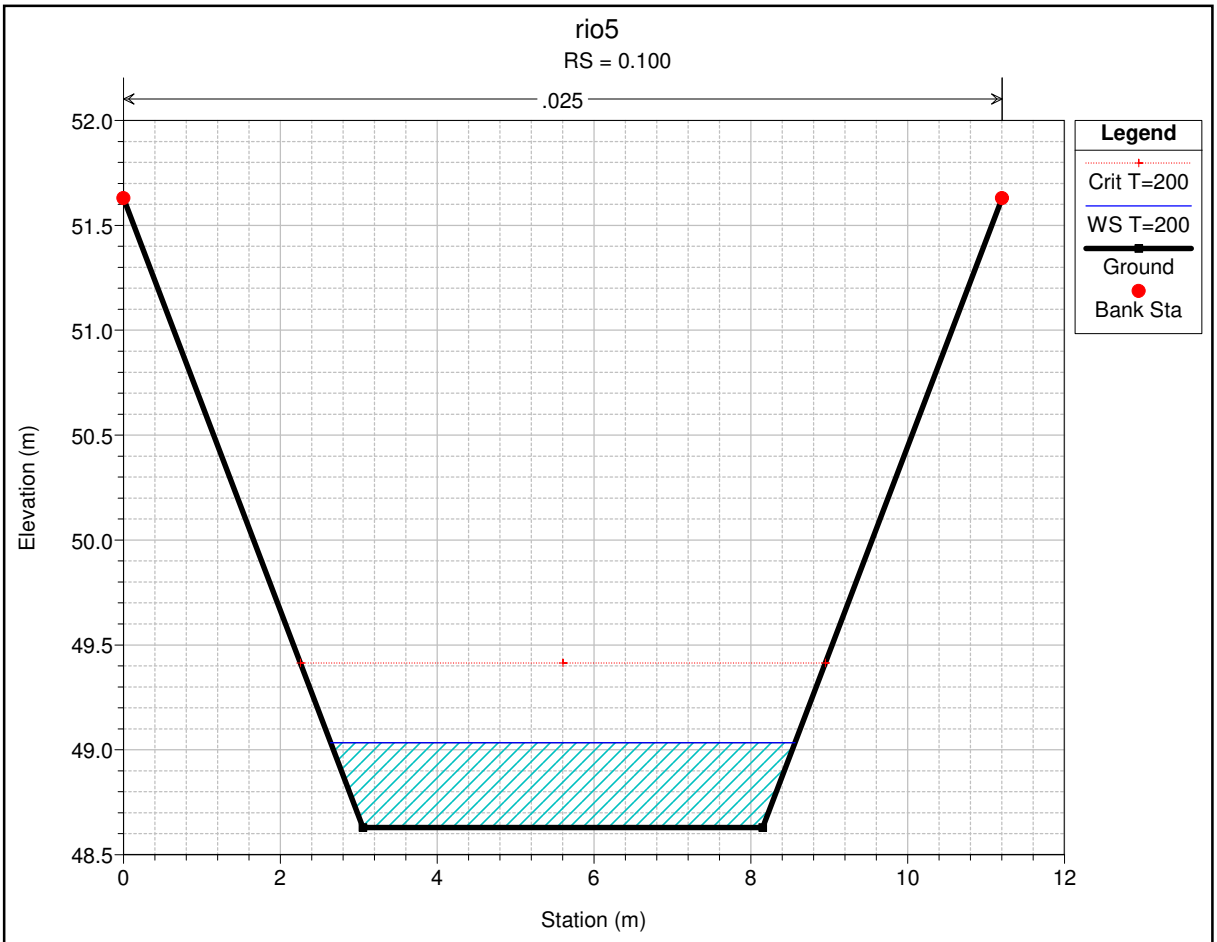
0.014 0.022 0.032 0.038 0.045 0.054 0.059 0.063 0.065 0.068 0.074 0.081 0.087 0.093 0.099 0.103 0.109 0.112 0.118 0.128 0.140

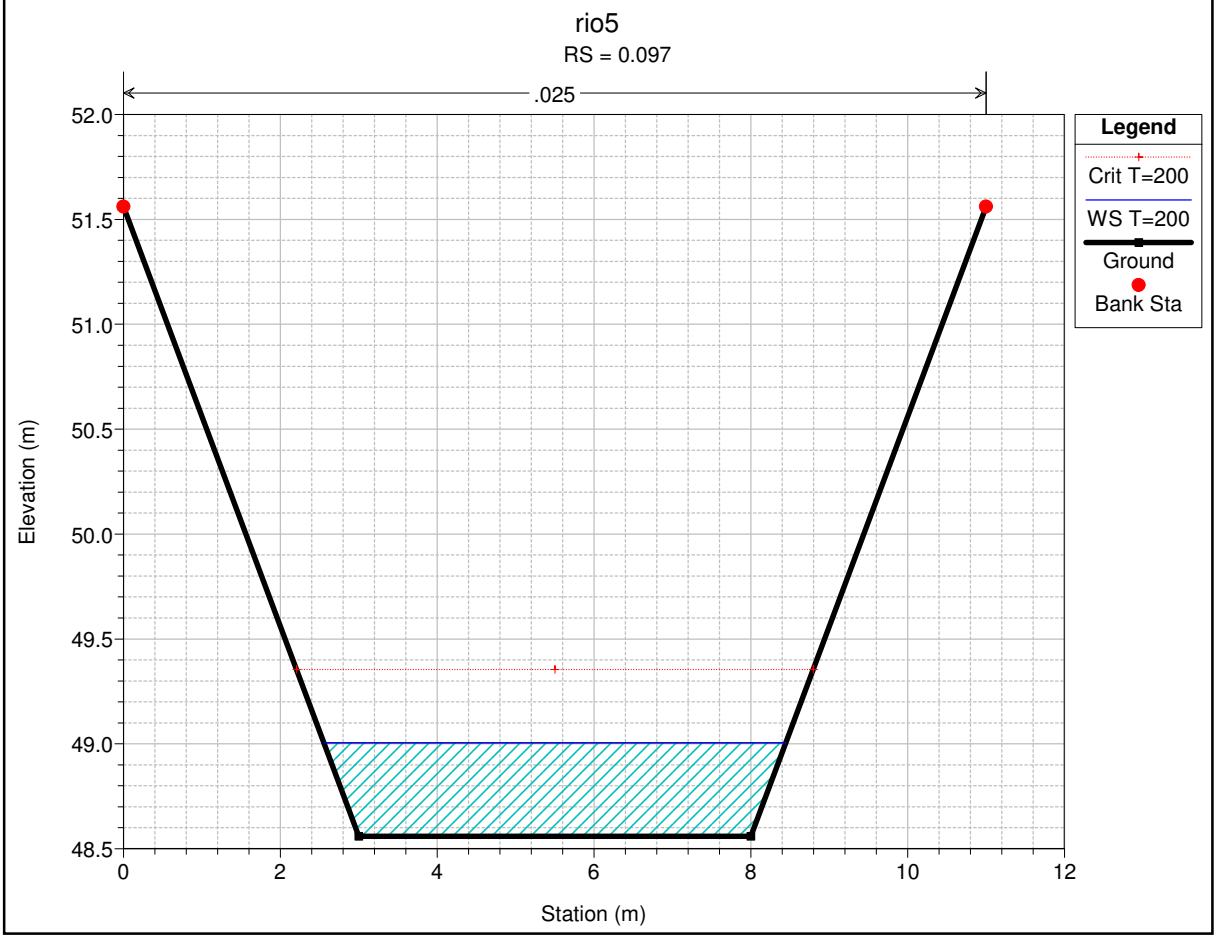
0 20 40 60 80 100 120 140

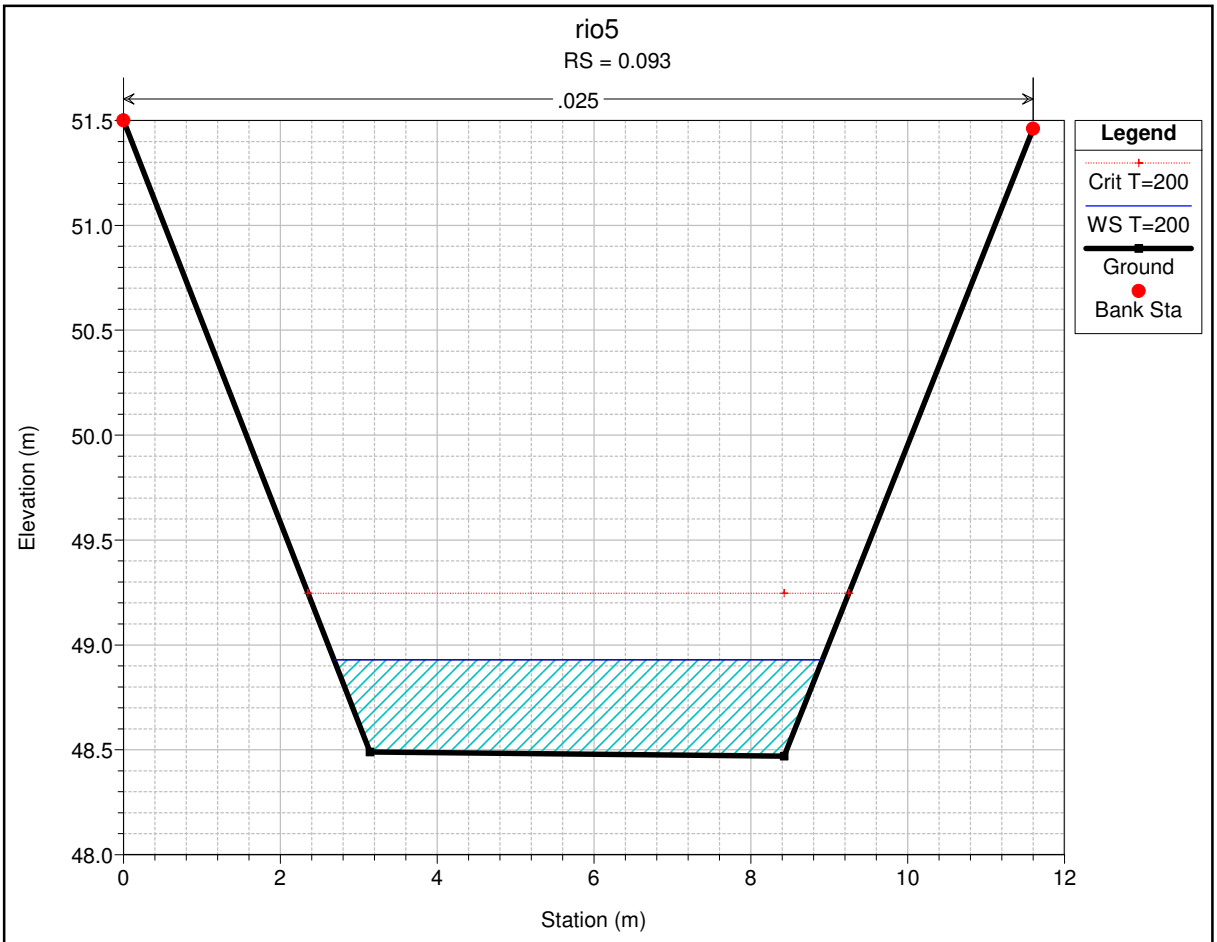
Main Channel Distance (m)

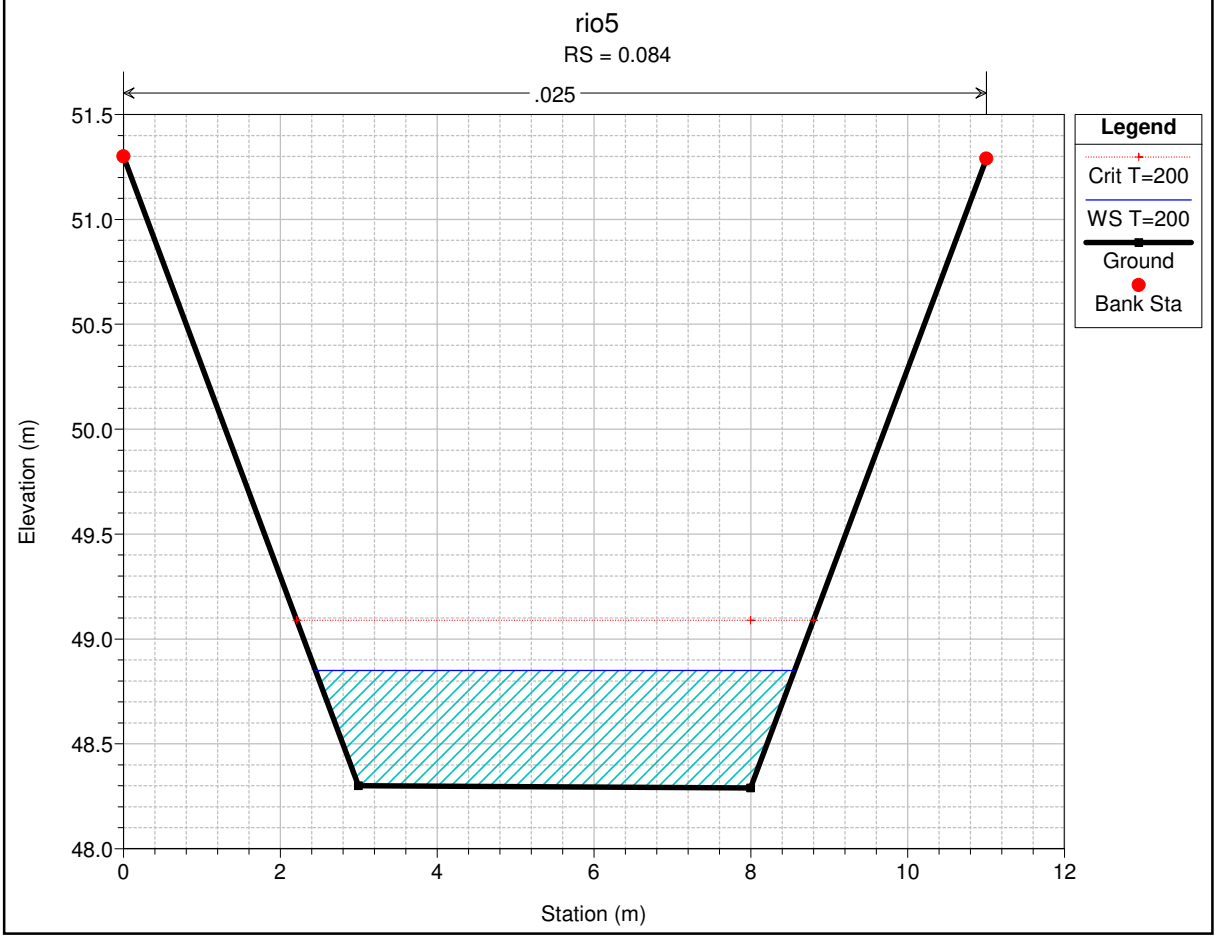

rio5
RS = 0.119
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
58
56
54
52
50
0
2
4
6
8

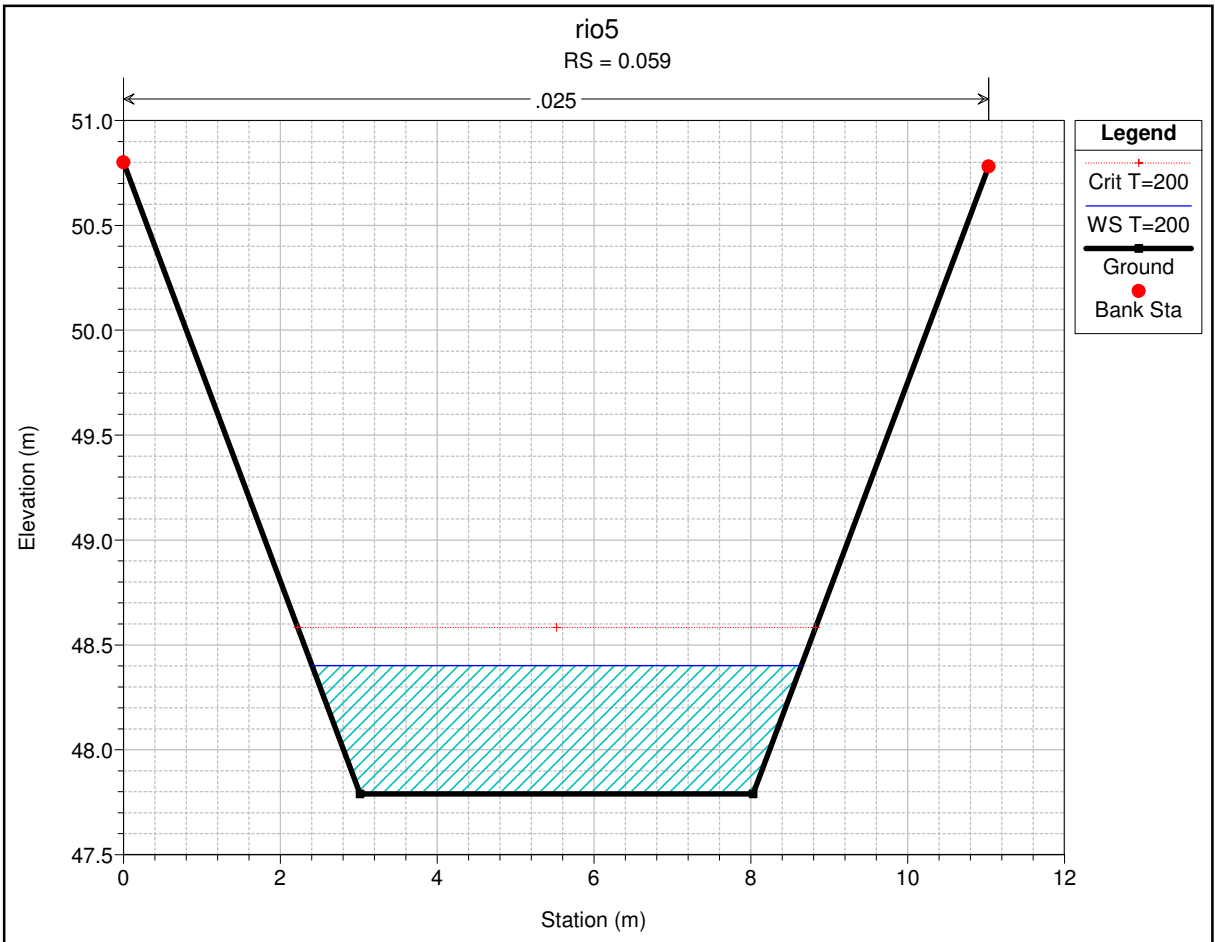

rio5
RS = 0.117
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
54
53
52
51
50
49
48
0
2
4
6
8
10
12

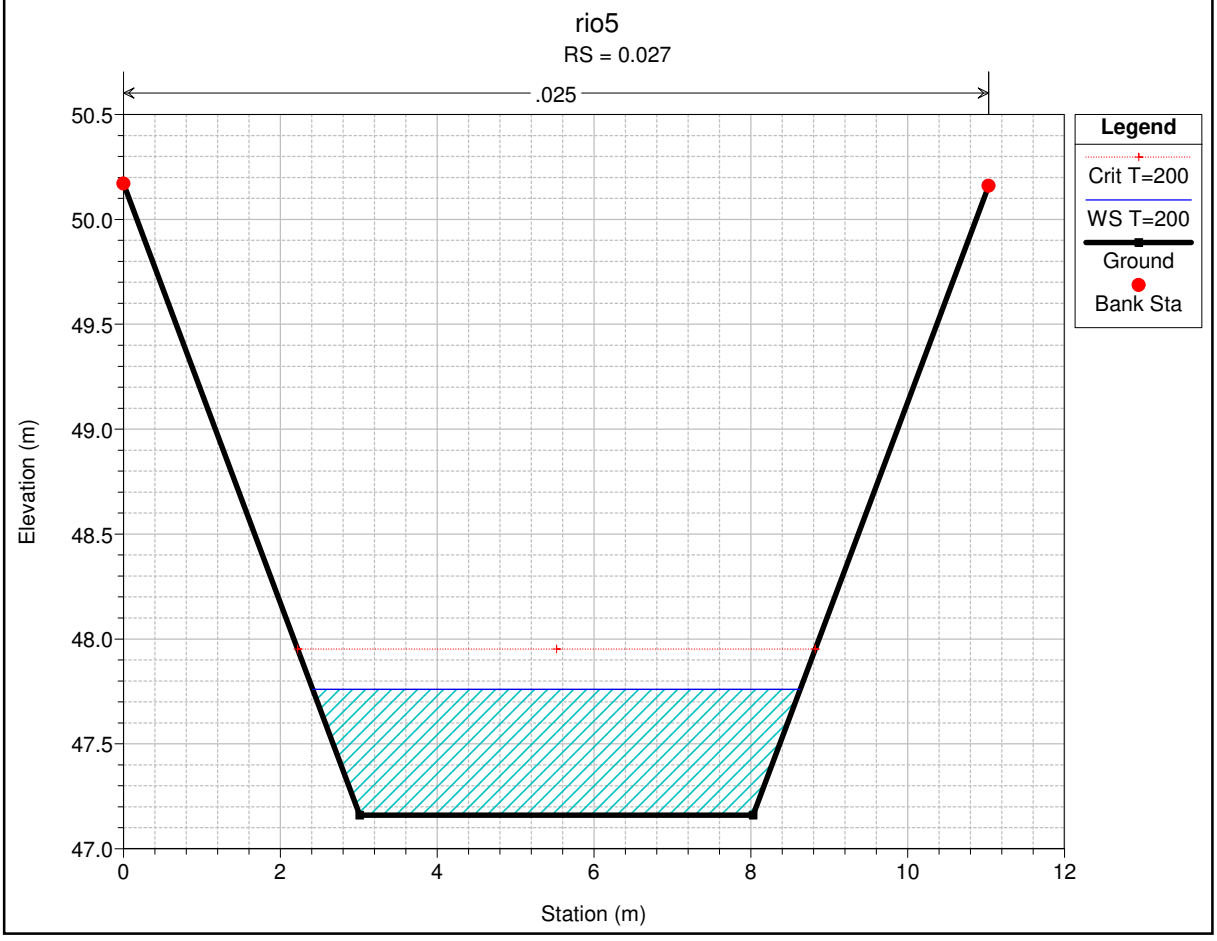

rio5
RS = 0.100
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
52.0
51.5
51.0
50.5
50.0
49.5
49.0
48.5
0
2
4
6
8
10
12

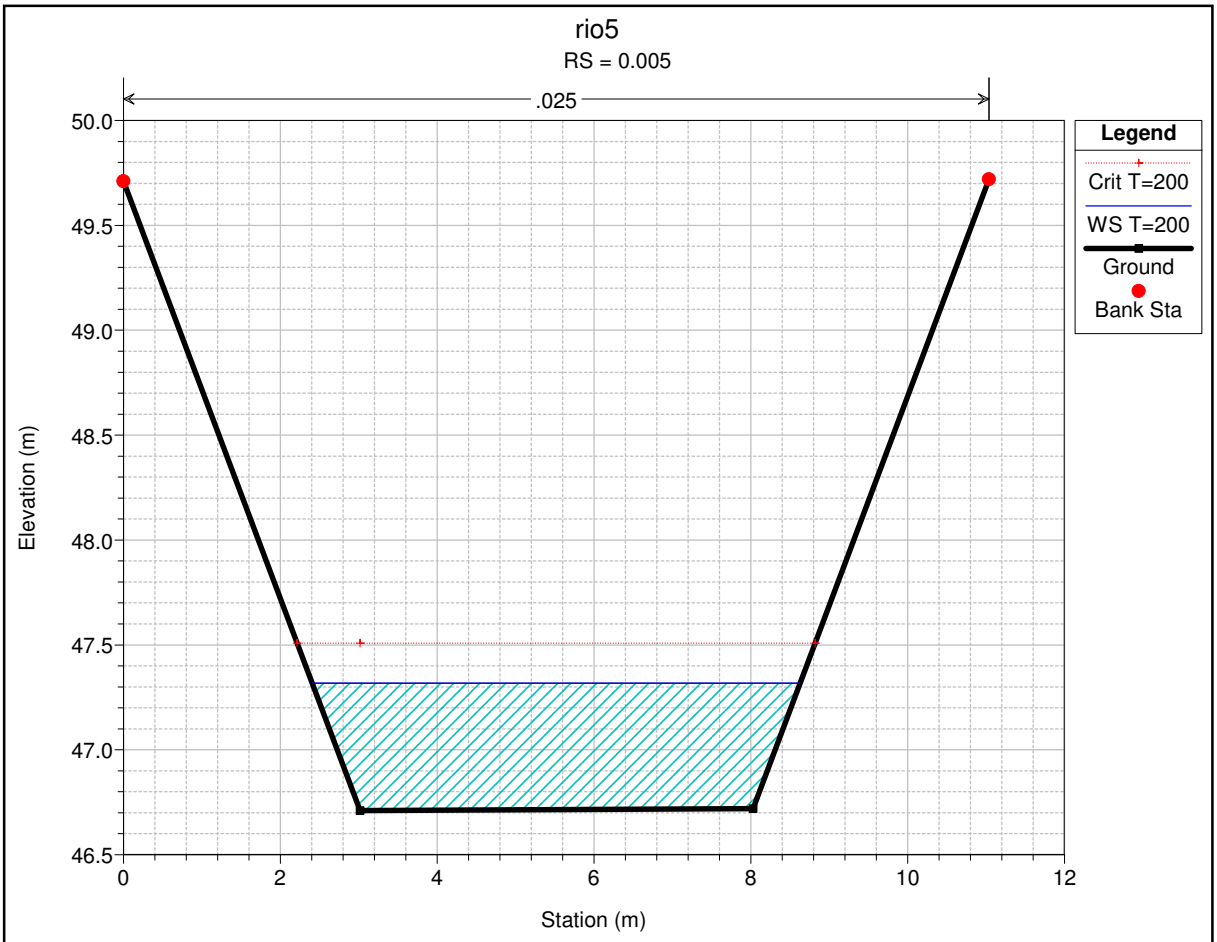

rio5
RS = 0.097
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
52.0
51.5
51.0
50.5
50.0
49.5
49.0
48.5
0
2
4
6
8
10
12

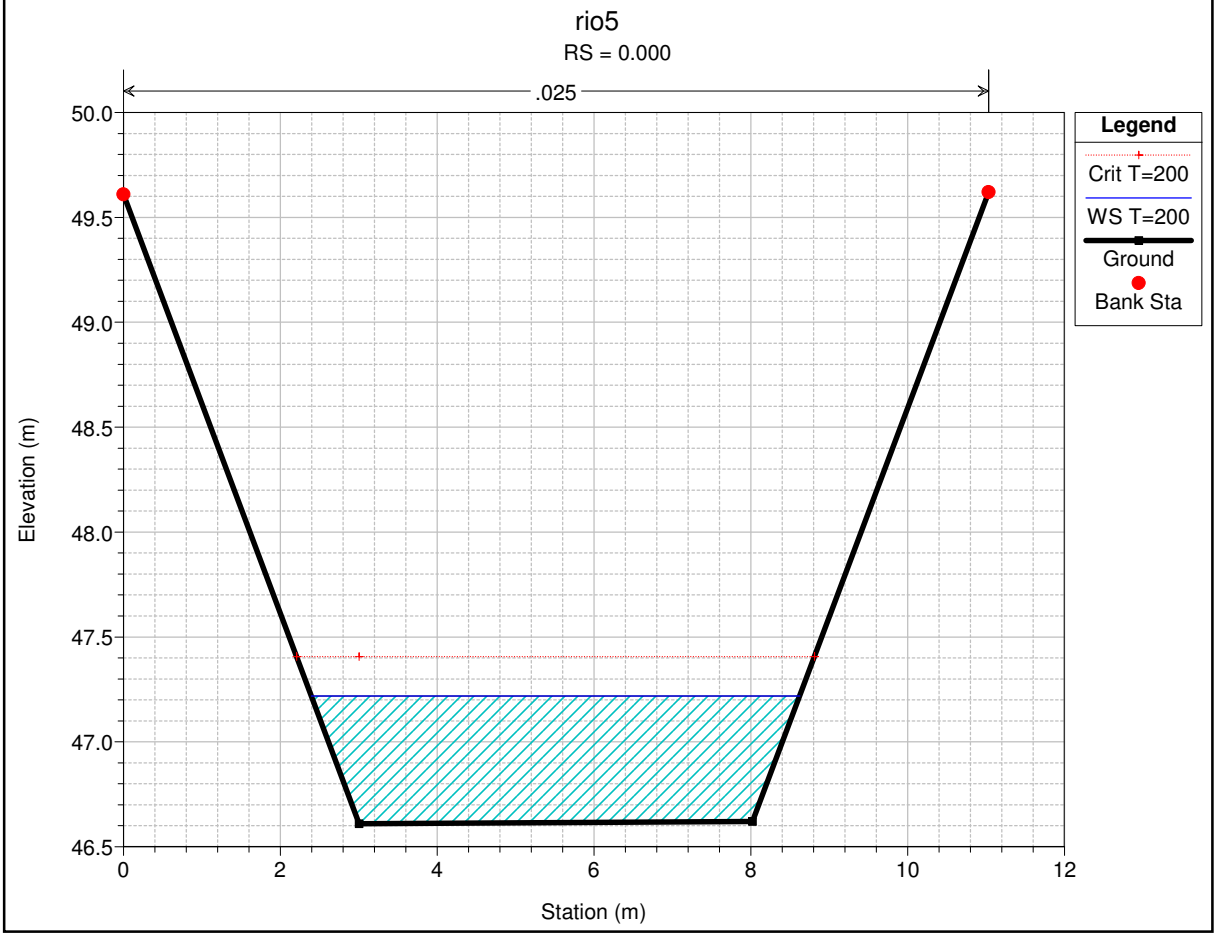

rio5
RS = 0.093
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
51.5
51.0
50.5
50.0
49.5
49.0
48.5
48.0
0
2
4
6
8
10
12

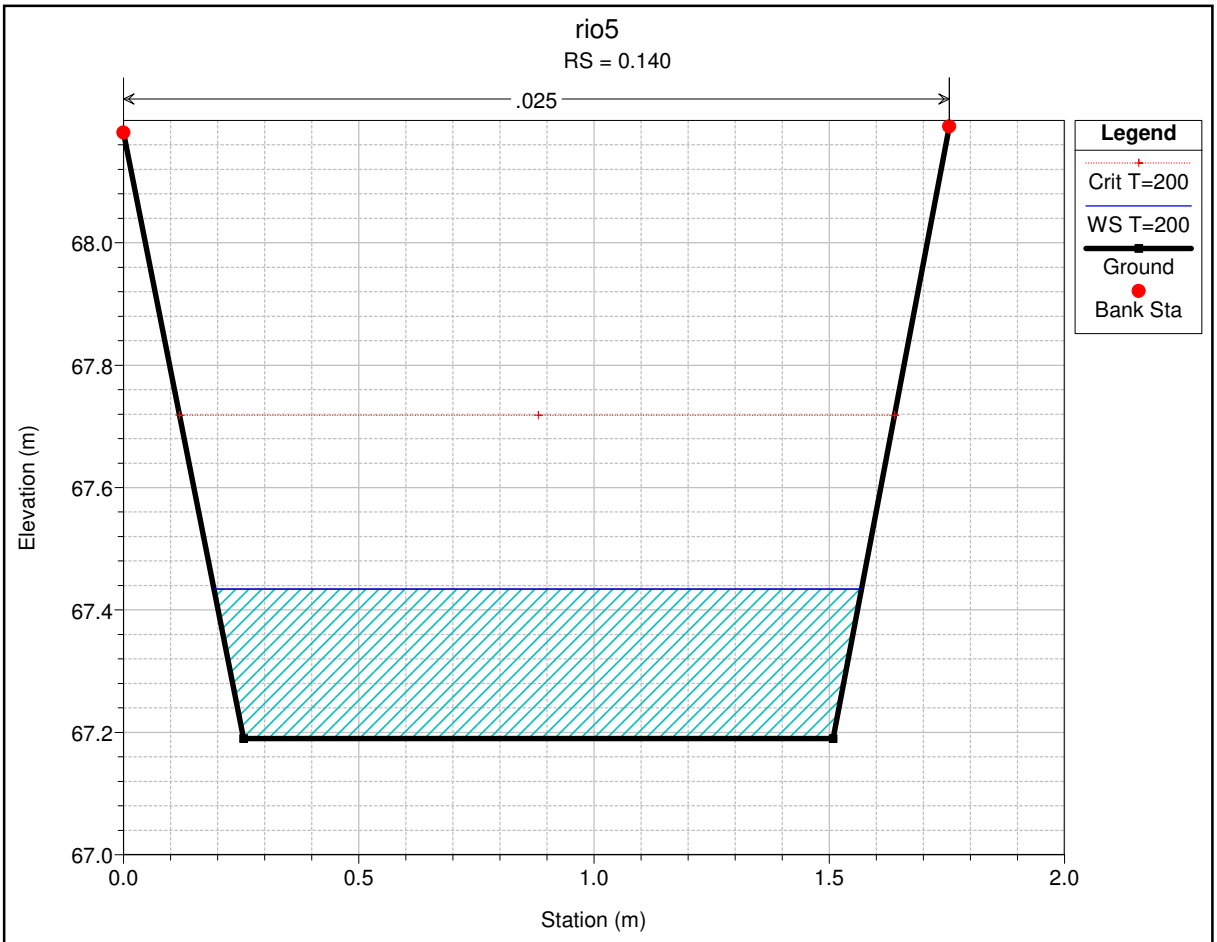

rio5
RS = 0.084
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
51.5
51.0
50.5
50.0
49.5
49.0
48.5
48.0
0
2
4
6
8
10
12

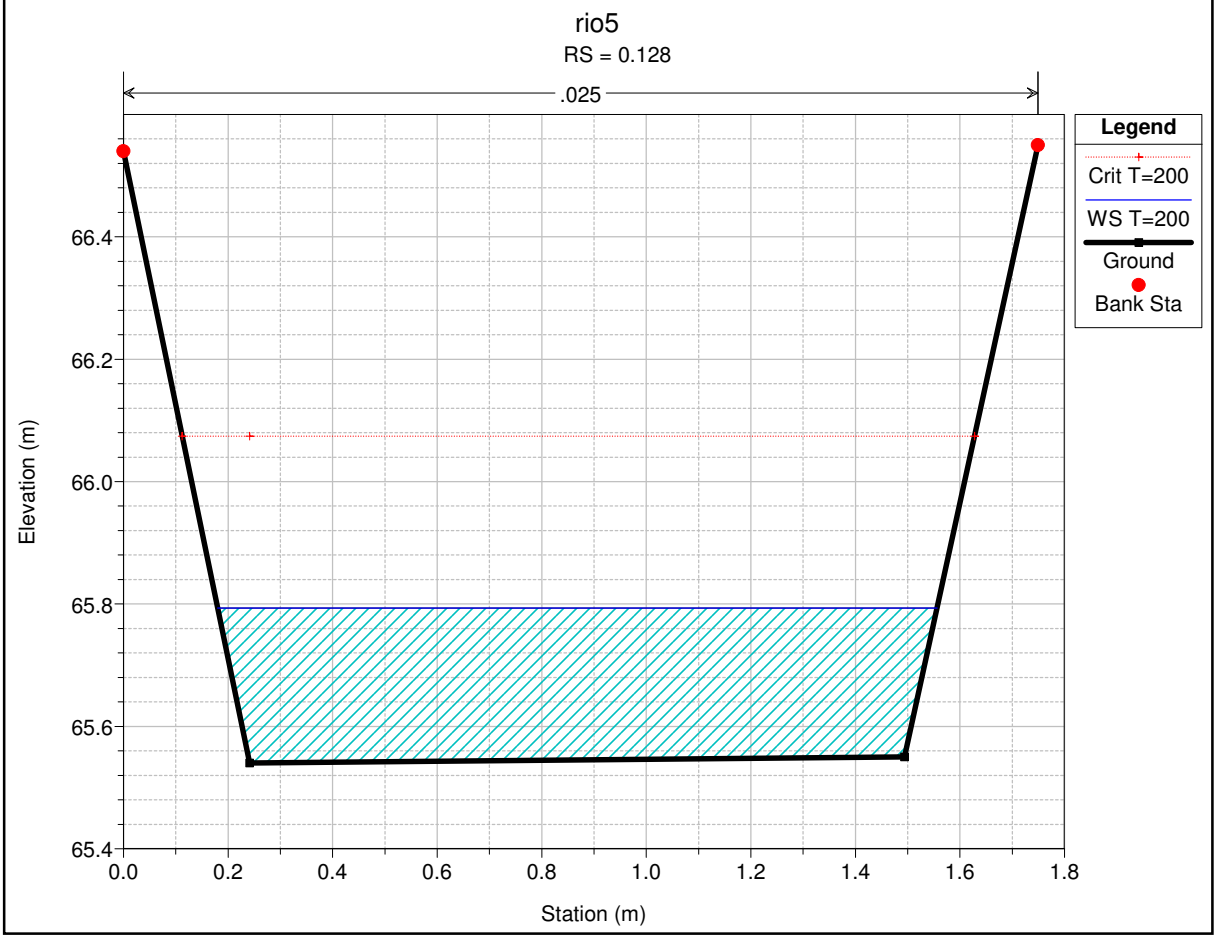

rio5
RS = 0.059
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
51.0
50.5
50.0
49.5
49.0
48.5
48.0
47.5
0
2
4
6
8
10
12

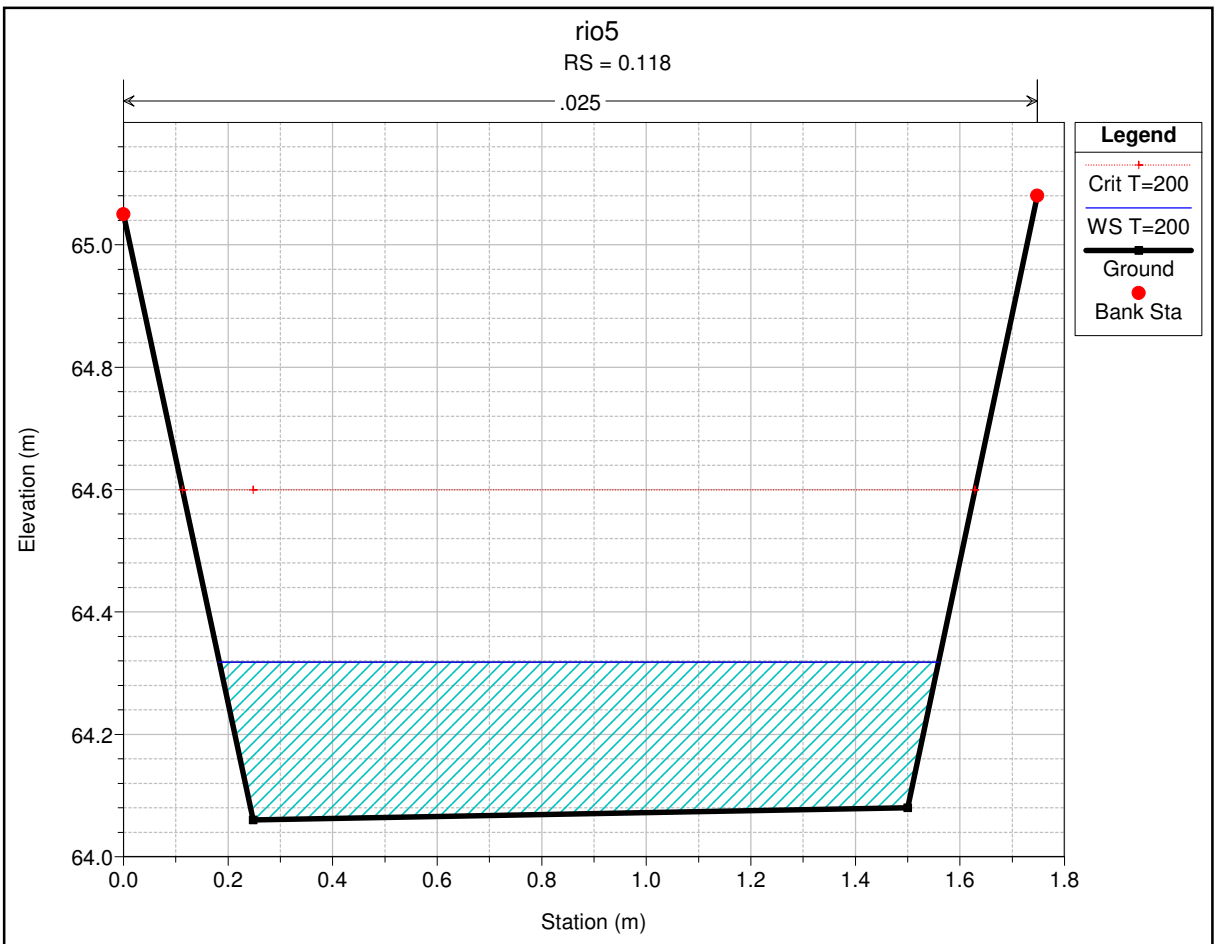

rio5
RS = 0.027
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
50.5
50.0
49.5
49.0
48.5
48.0
47.5
47.0
0
2
4
6
8
10
12

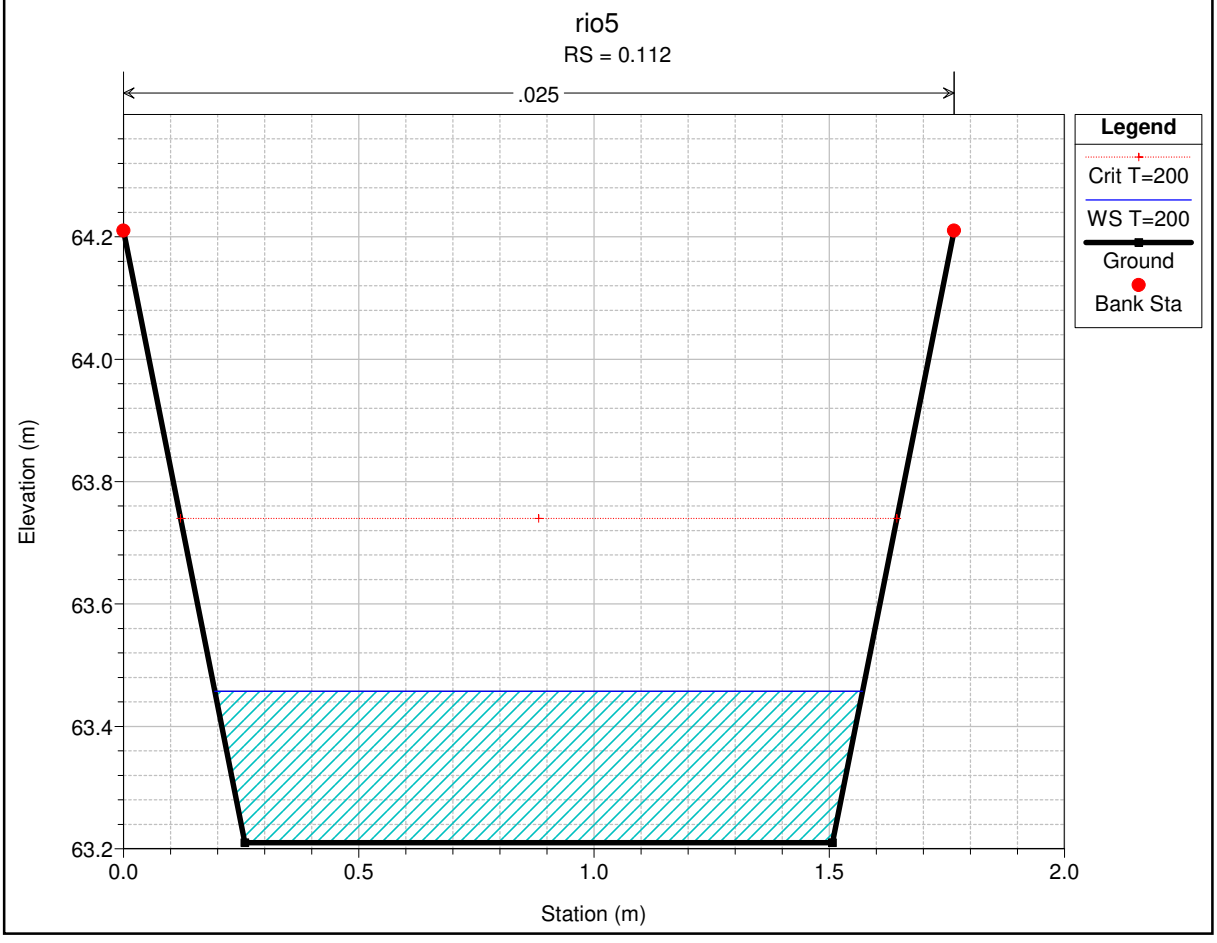

rio5
RS = 0.005
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
50.0
49.5
49.0
48.5
48.0
47.5
47.0
46.5
0
2
4
6
8
10
12

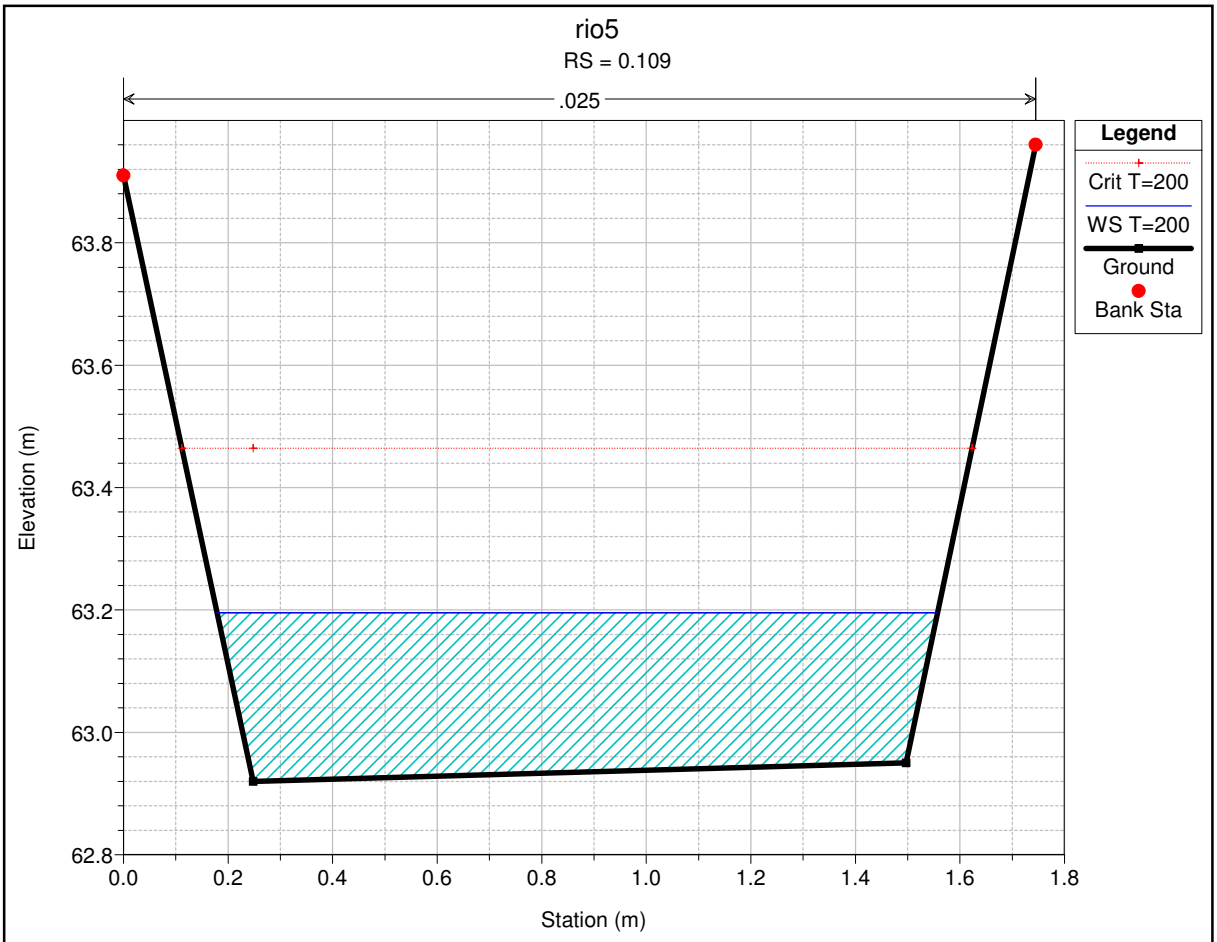

rio5
RS = 0.000
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
50.0
49.5
49.0
48.5
48.0
47.5
47.0
46.5
0
2
4
6
8
10
12

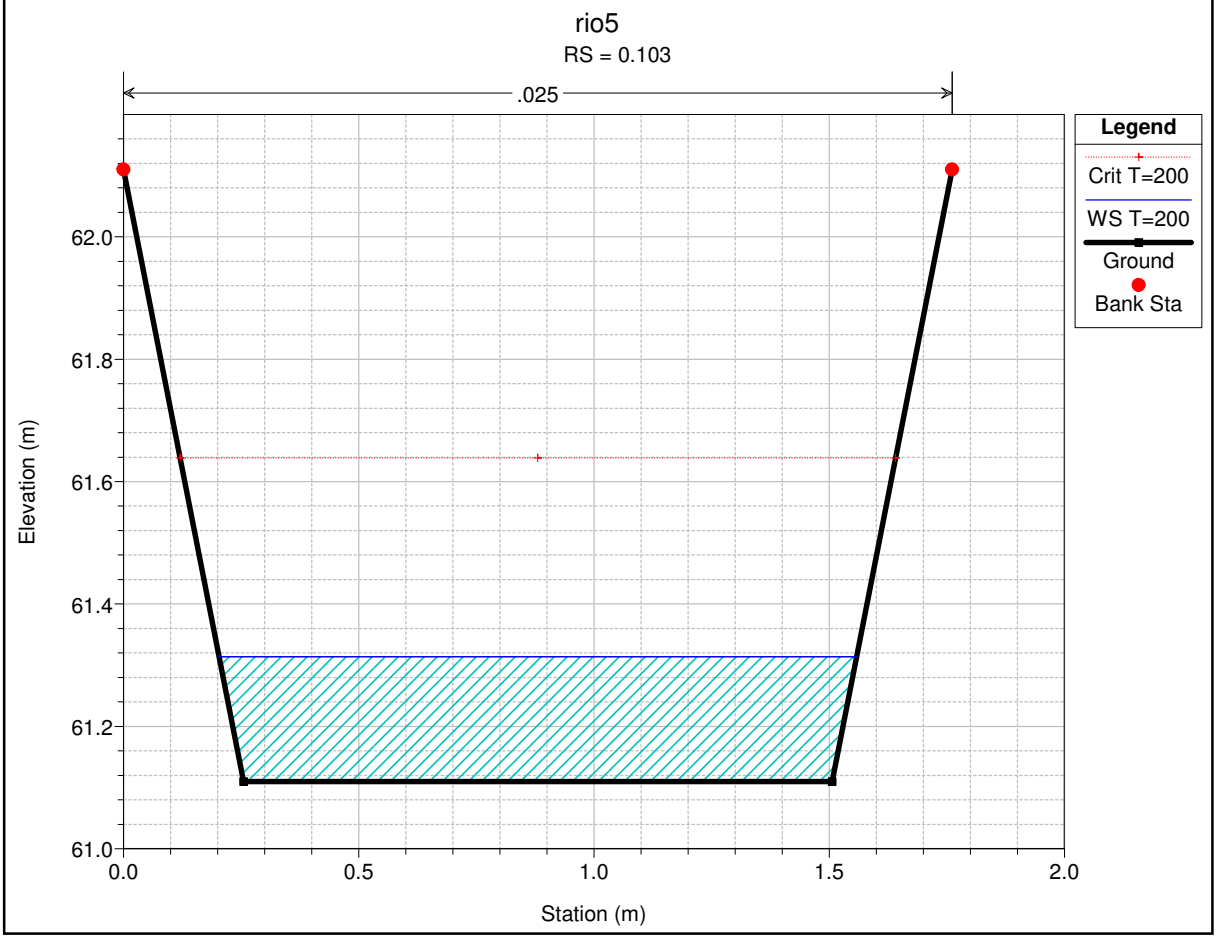

rio5
RS = 0.140
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
68.0
67.8
67.6
67.4
67.2
67.0
0.0
0.5
1.0
1.5
2.0
Station (m)

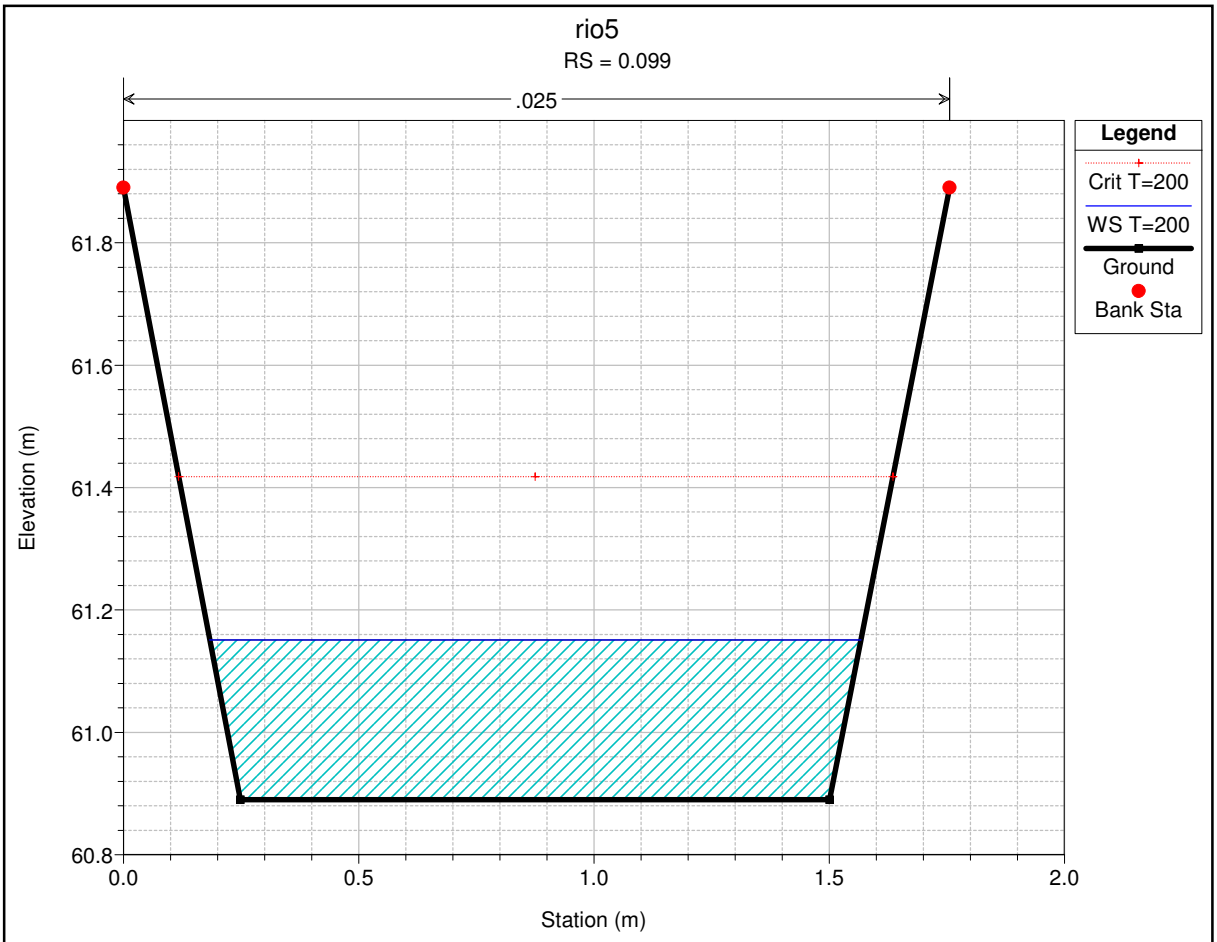

rio5
RS = 0.128
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
66.4
66.2
66.0
65.8
65.6
65.4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
Station (m)

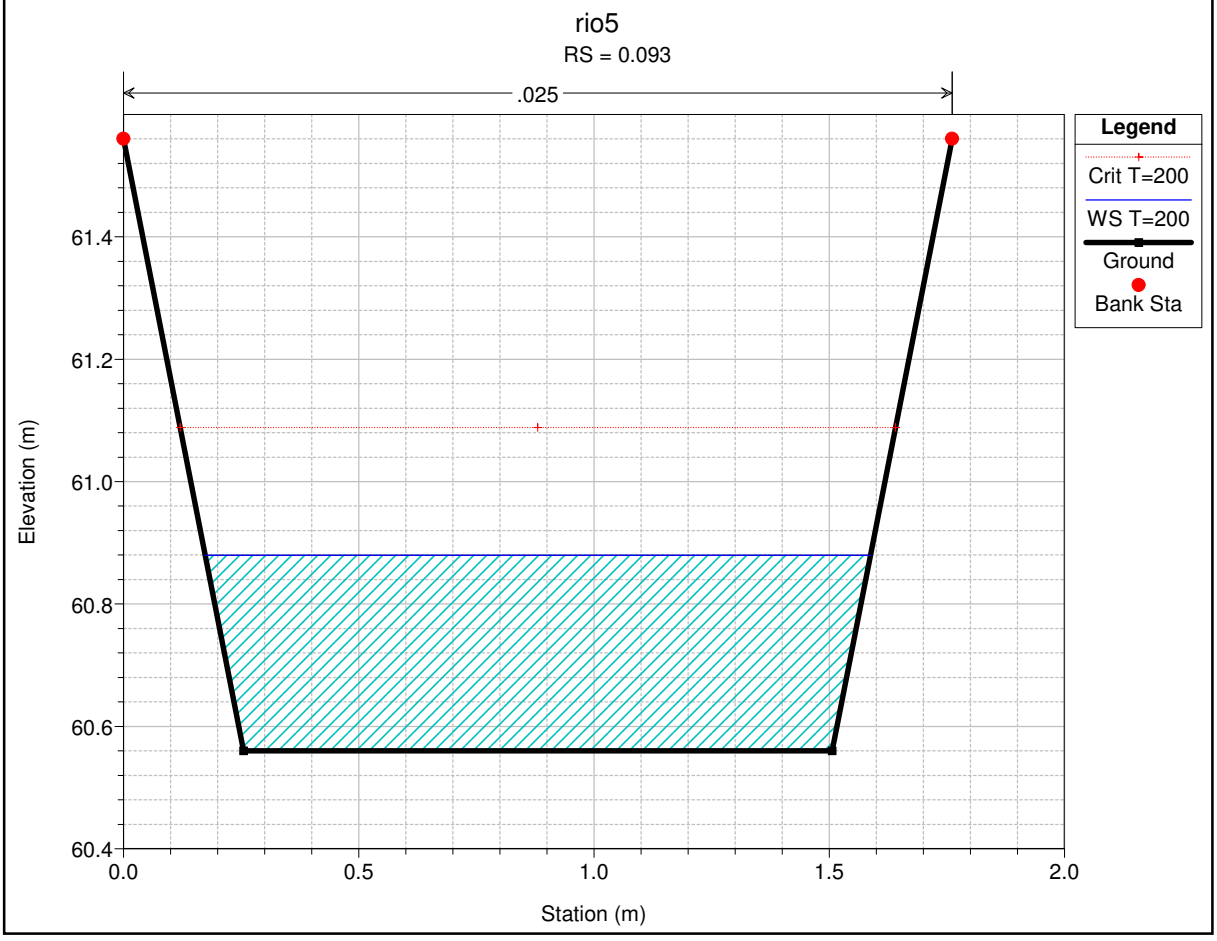

rio5
RS = 0.118
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
65.0
64.8
64.6
64.4
64.2
64.0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
Station (m)

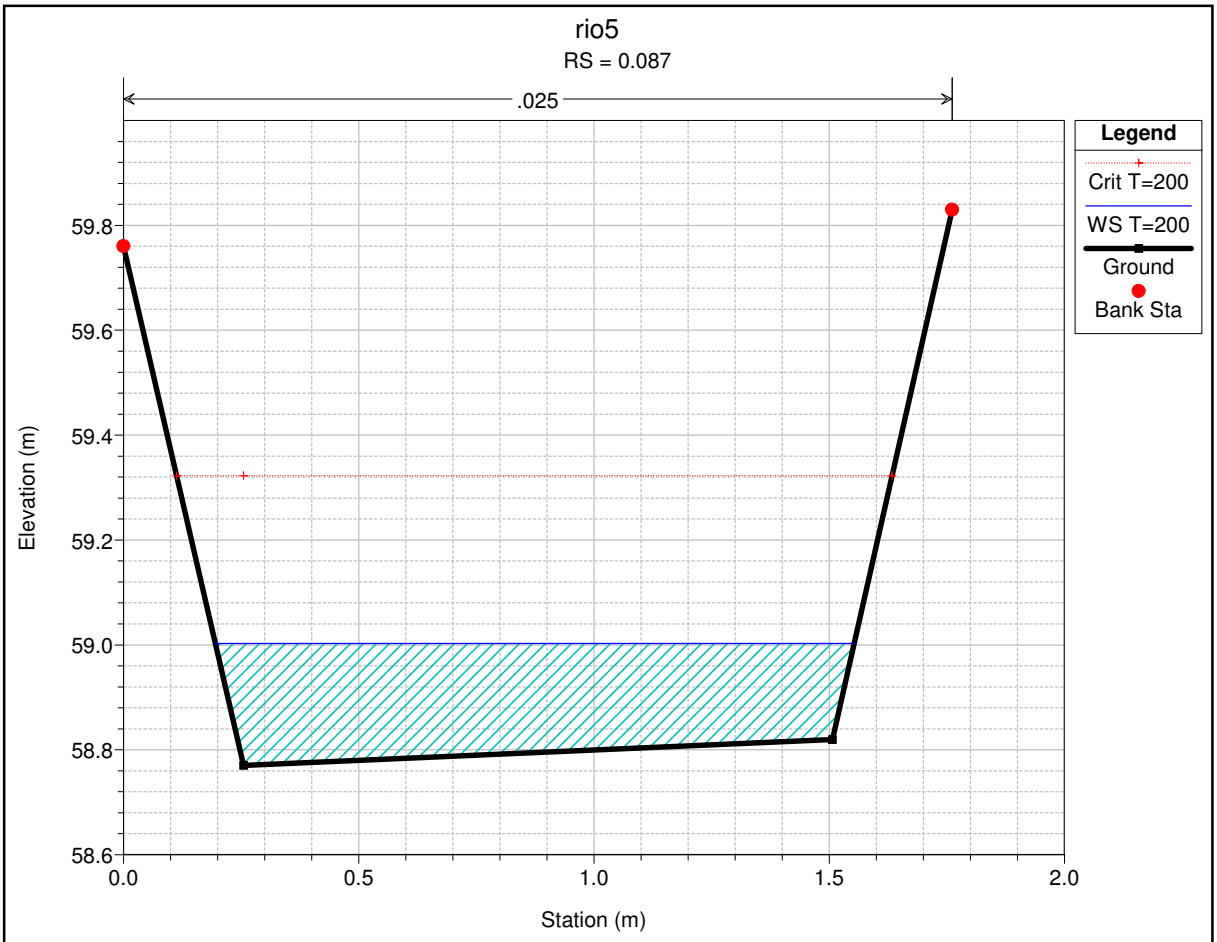

rio5
RS = 0.112
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
64.2
64.0
63.8
63.6
63.4
63.2
0.0
0.5
1.0
1.5
2.0
Station (m)

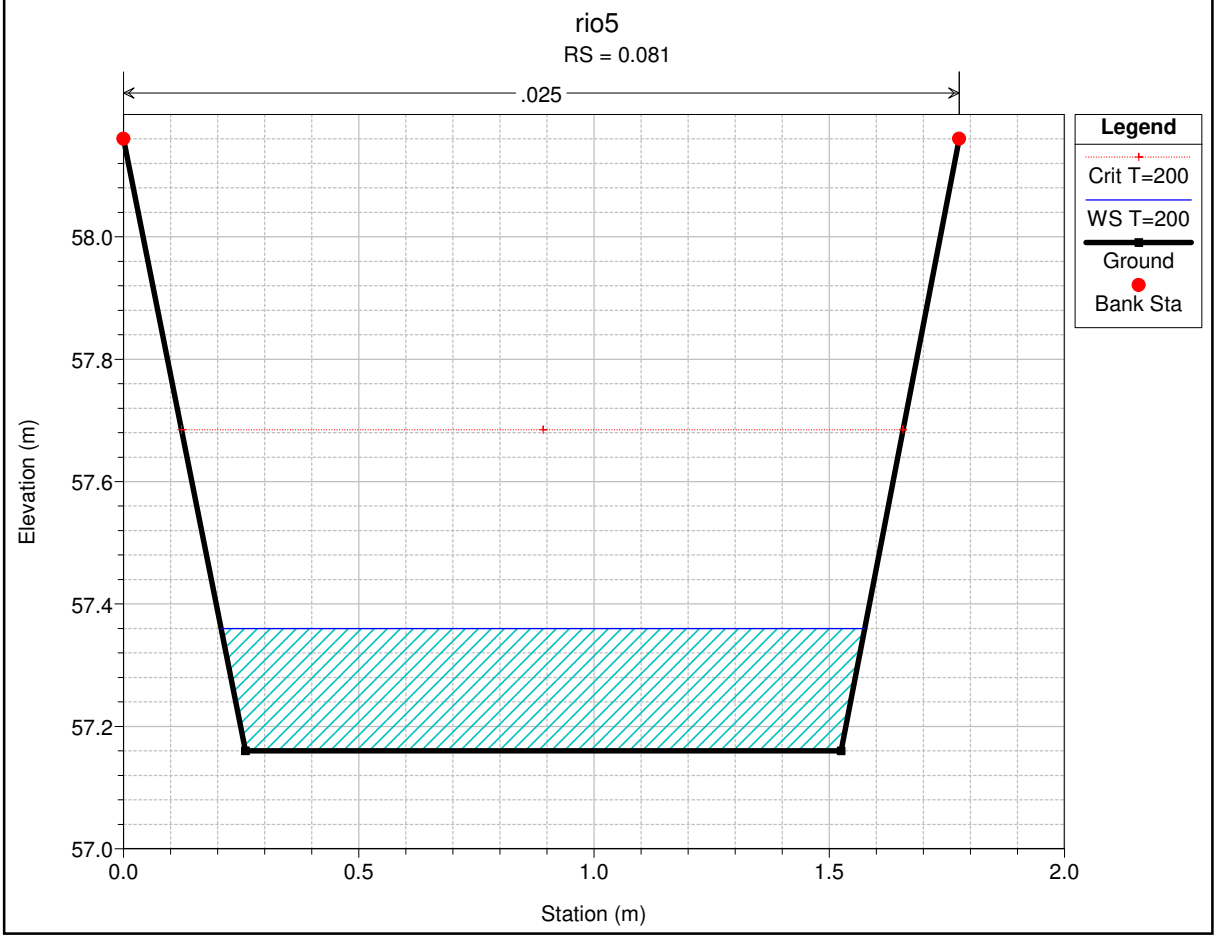

rio5
RS = 0.109
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
63.8
63.6
63.4
63.2
63.0
62.8
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
Station (m)

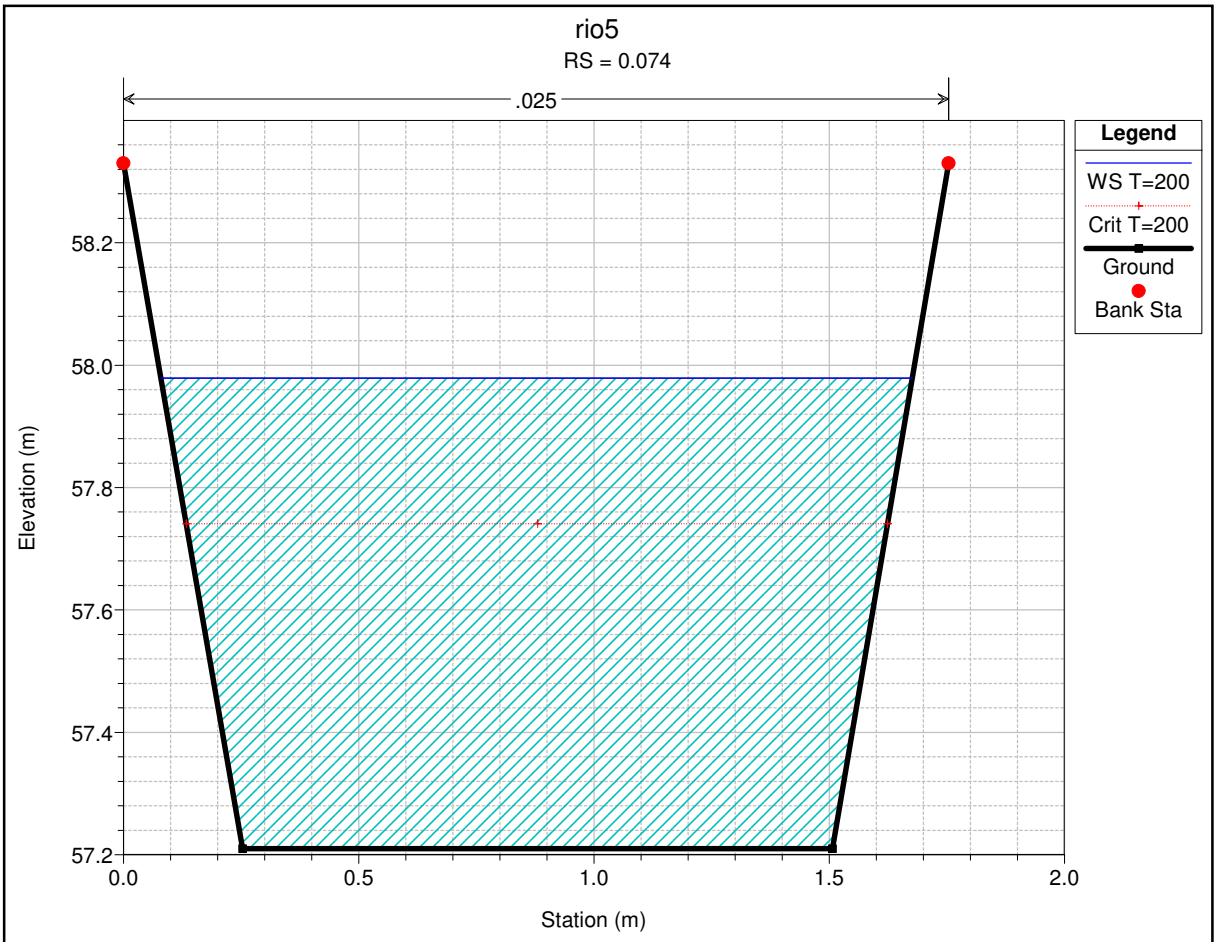

rio5
RS = 0.103
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
62.0
61.8
61.6
61.4
61.2
61.0
0.0
0.5
1.0
1.5
2.0
Station (m)

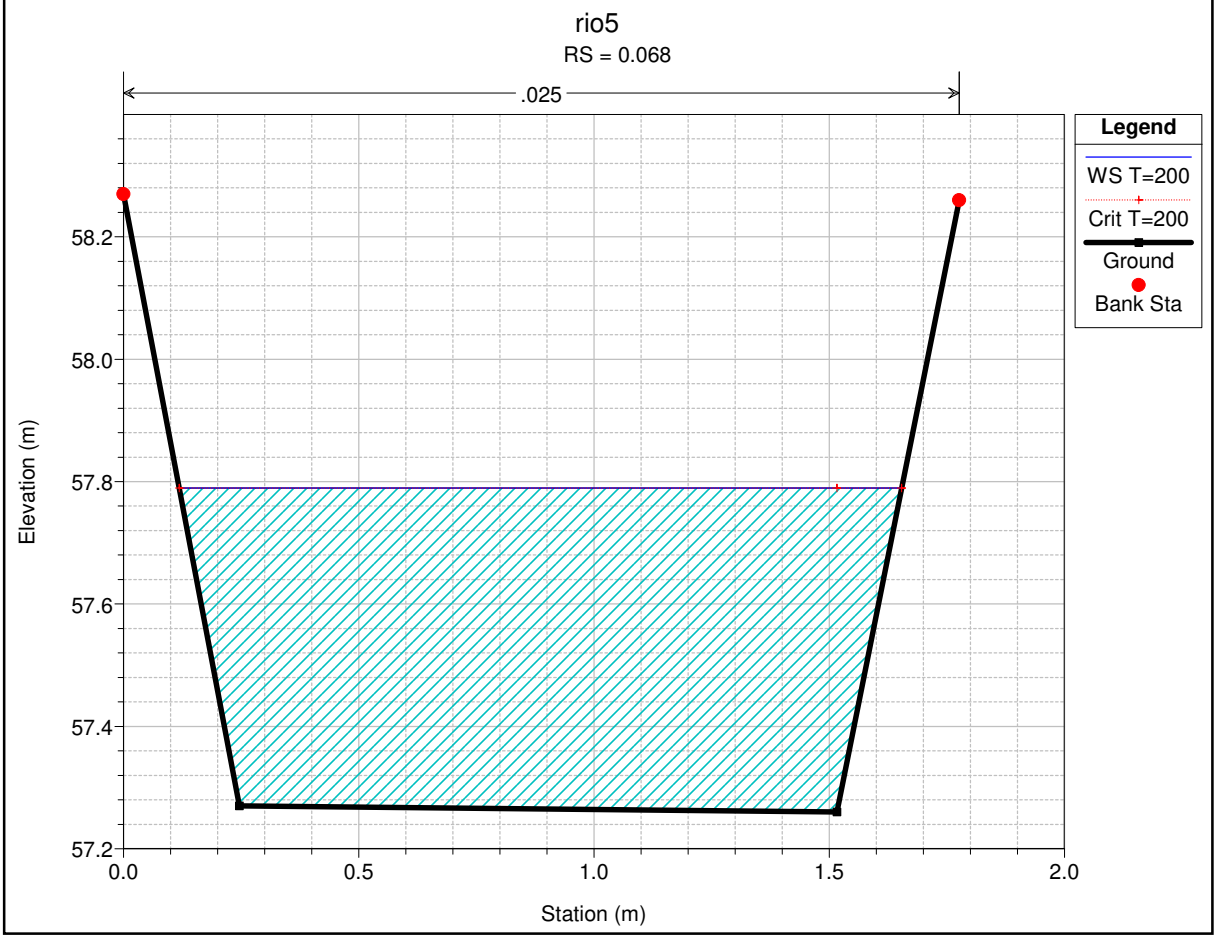

rio5
RS = 0.099
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
61.8
61.6
61.4
61.2
61.0
60.8
0.0
0.5
1.0
1.5
2.0
Station (m)

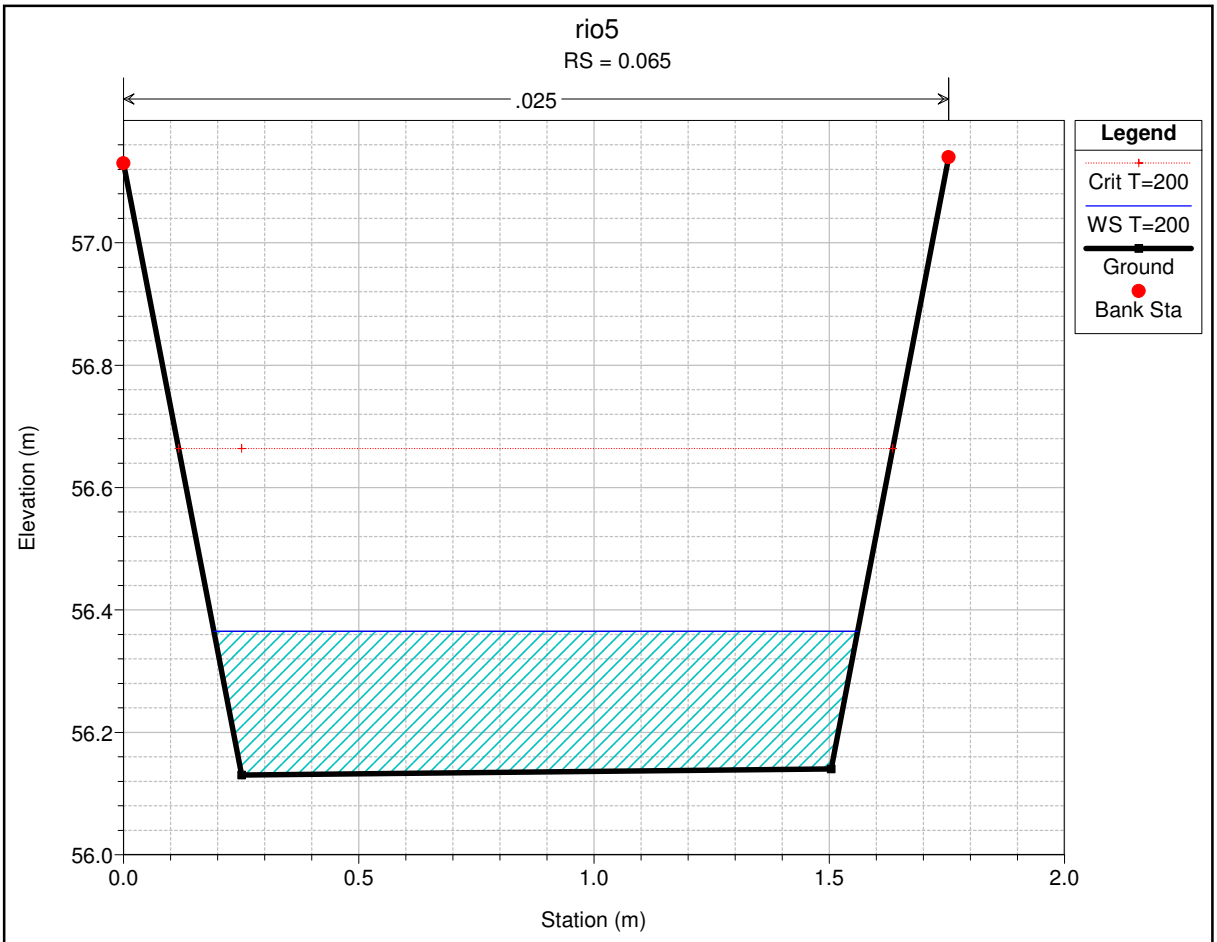

rio5
RS = 0.093
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
61.4
61.2
61.0
60.8
60.6
60.4
0.0
0.5
1.0
1.5
2.0
Station (m)

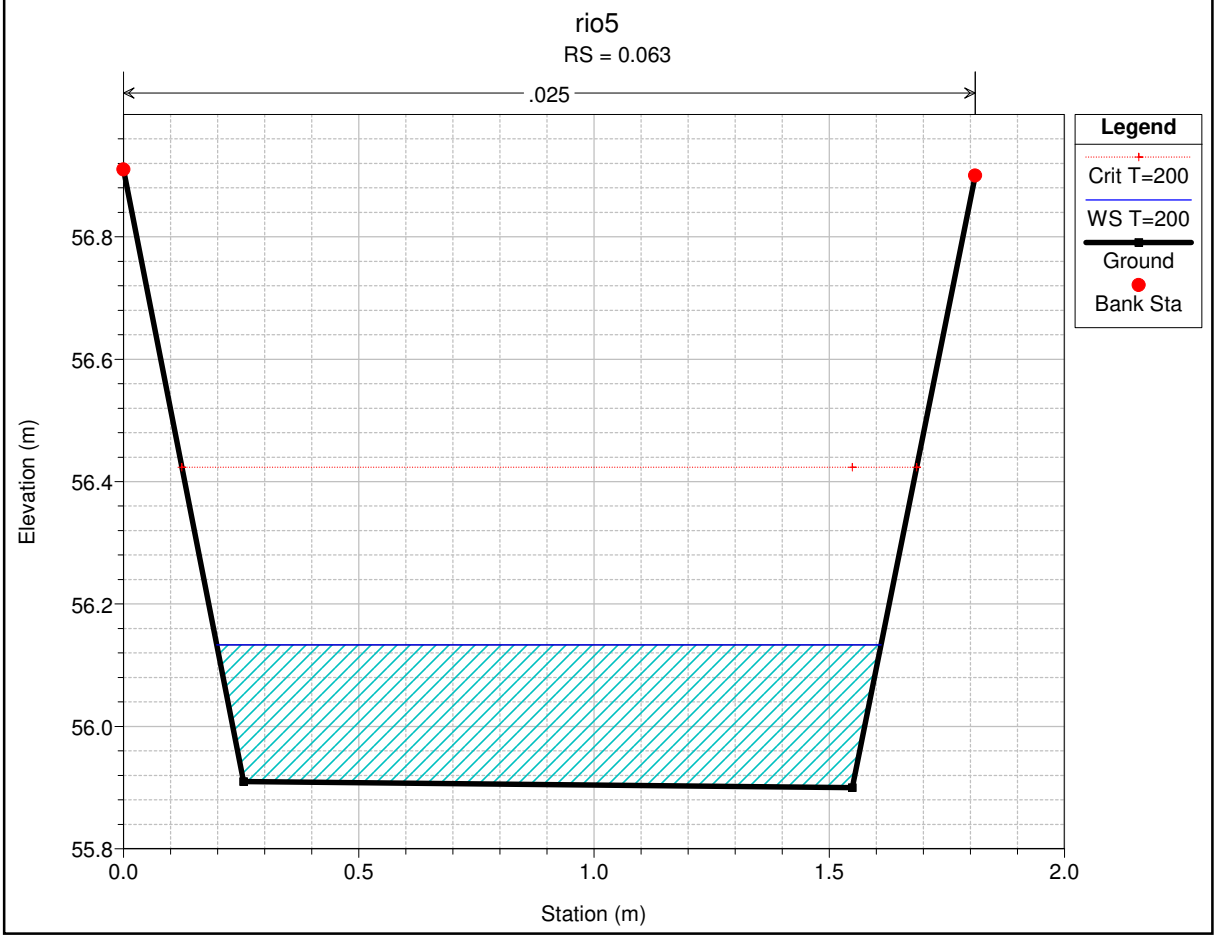

rio5
RS = 0.087
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
59.8
59.6
59.4
59.2
59.0
58.8
58.6
0.0
0.5
1.0
1.5
2.0
Station (m)

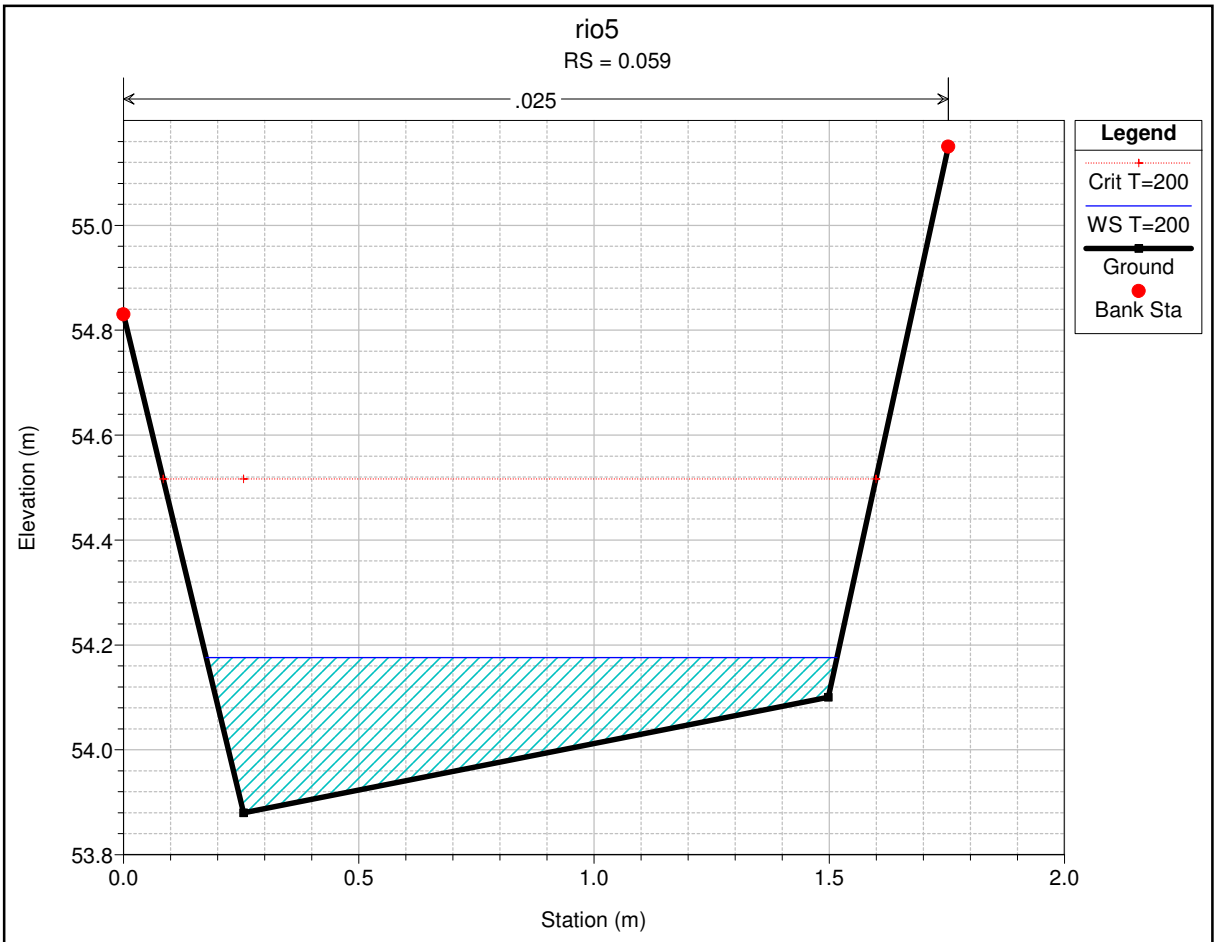

rio5
RS = 0.081
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
58.0
57.8
57.6
57.4
57.2
57.0
0.0
0.5
1.0
1.5
2.0
Station (m)

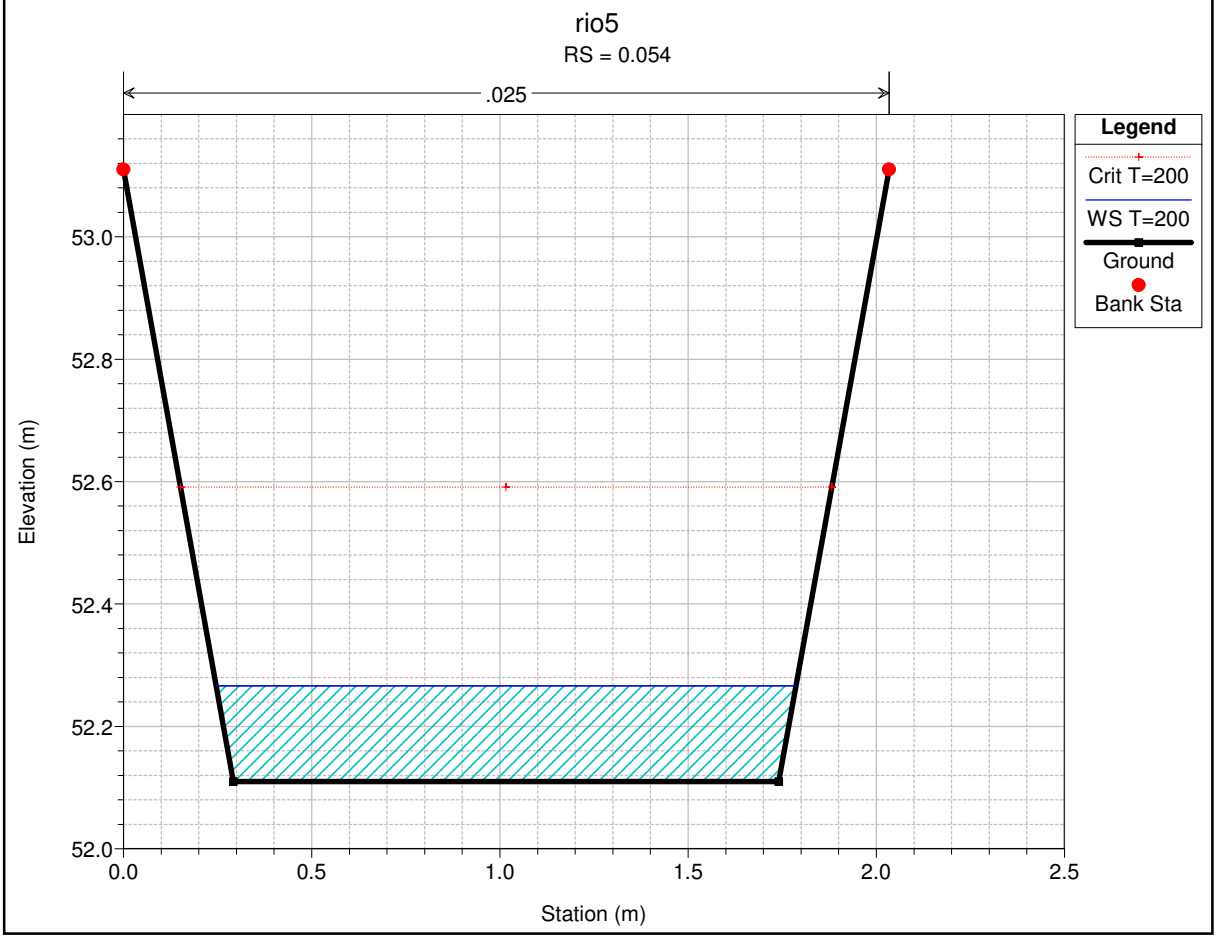

rio5
RS = 0.074
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
58.2
58.0
57.8
57.6
57.4
57.2
0.0
0.5
1.0
1.5
2.0
Station (m)

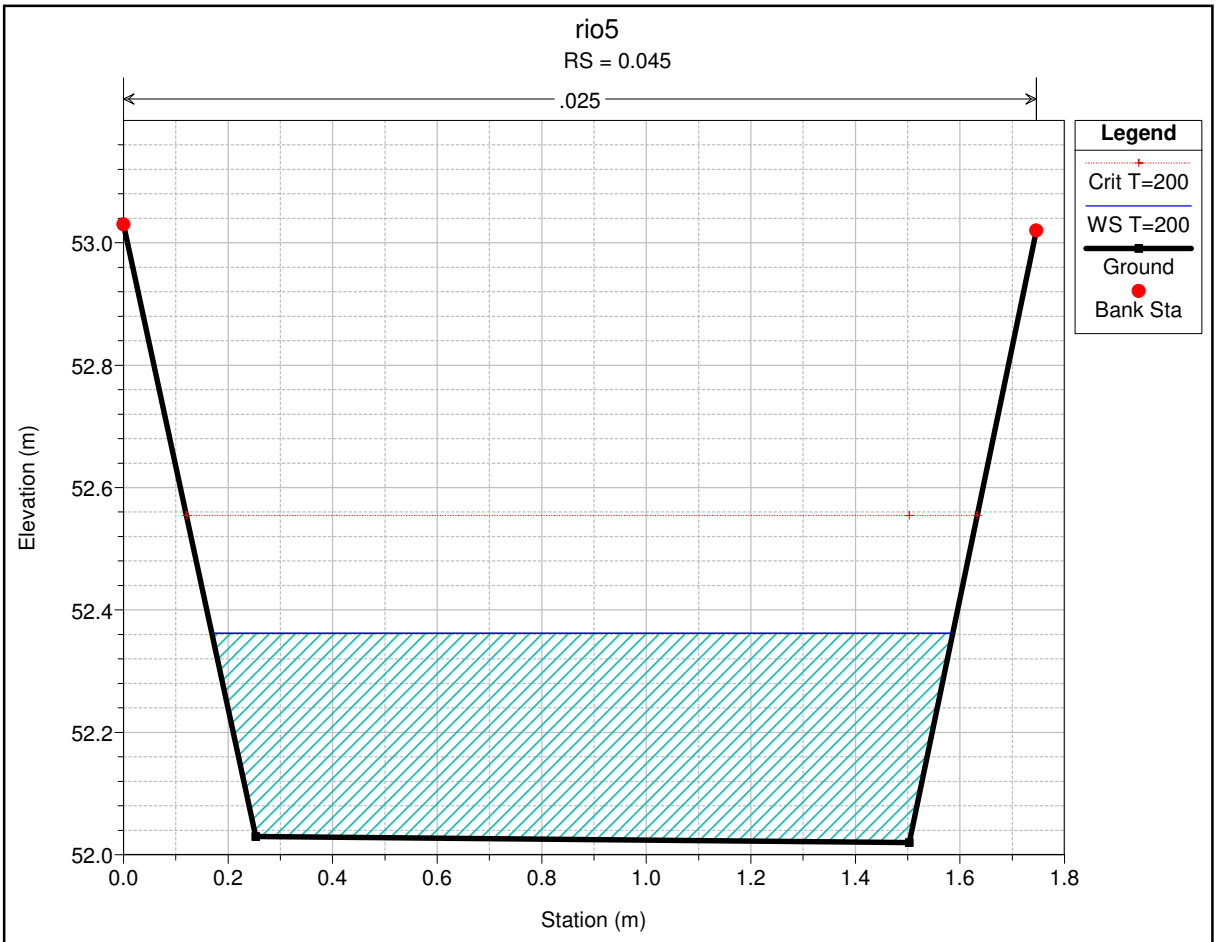

rio5
RS = 0.068
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
58.2
58.0
57.8
57.6
57.4
57.2
0.0
0.5
1.0
1.5
2.0
Station (m)

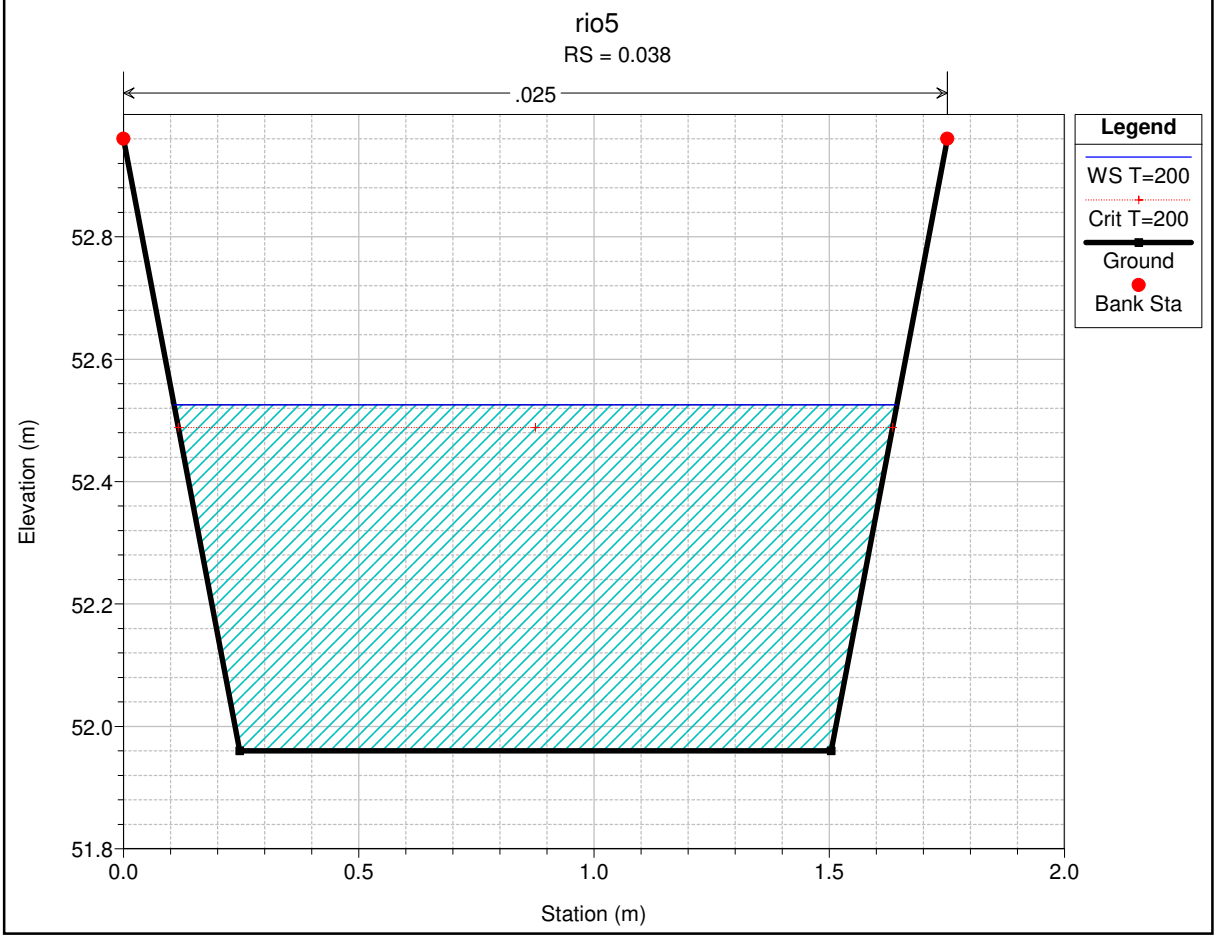

rio5
RS = 0.065
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
57.0
56.8
56.6
56.4
56.2
56.0
0.0
0.5
1.0
1.5
2.0
Station (m)

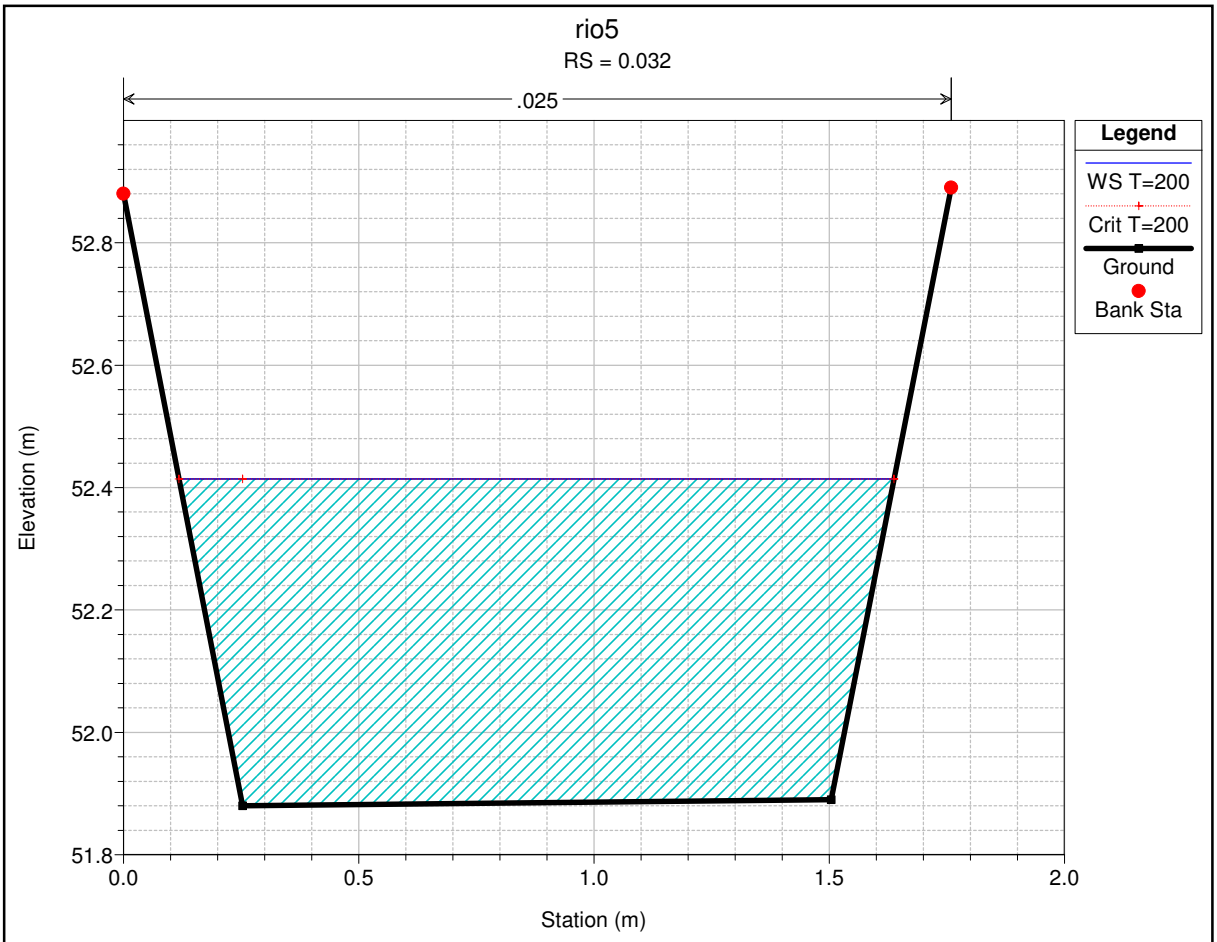

rio5
RS = 0.063
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
56.8
56.6
56.4
56.2
56.0
55.8
0.0
0.5
1.0
1.5
2.0
Station (m)

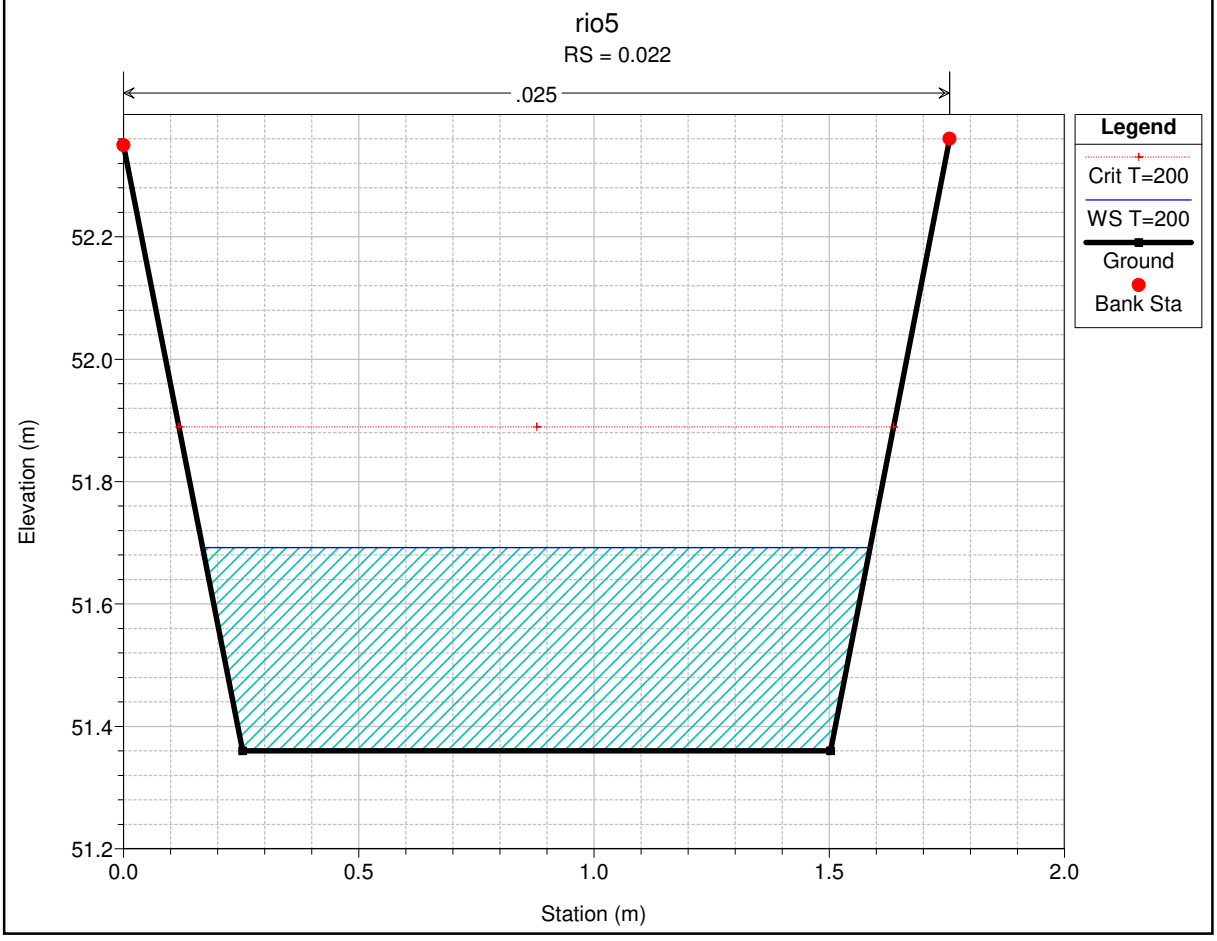

rio5
RS = 0.059
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
55.0
54.8
54.6
54.4
54.2
54.0
53.8
0.0
0.5
1.0
1.5
2.0
Station (m)

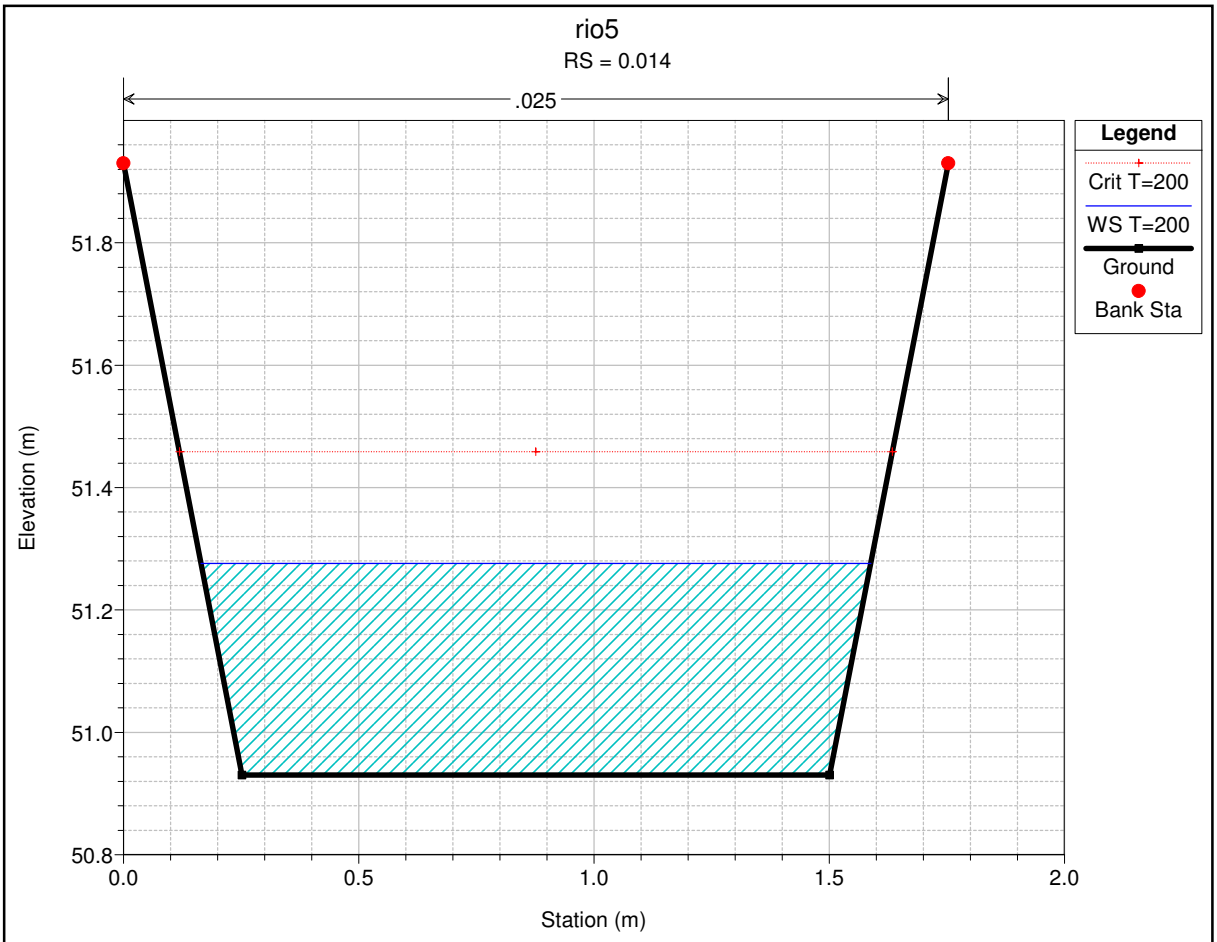

rio5
RS = 0.054
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
53.0
52.8
52.6
52.4
52.2
52.0
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

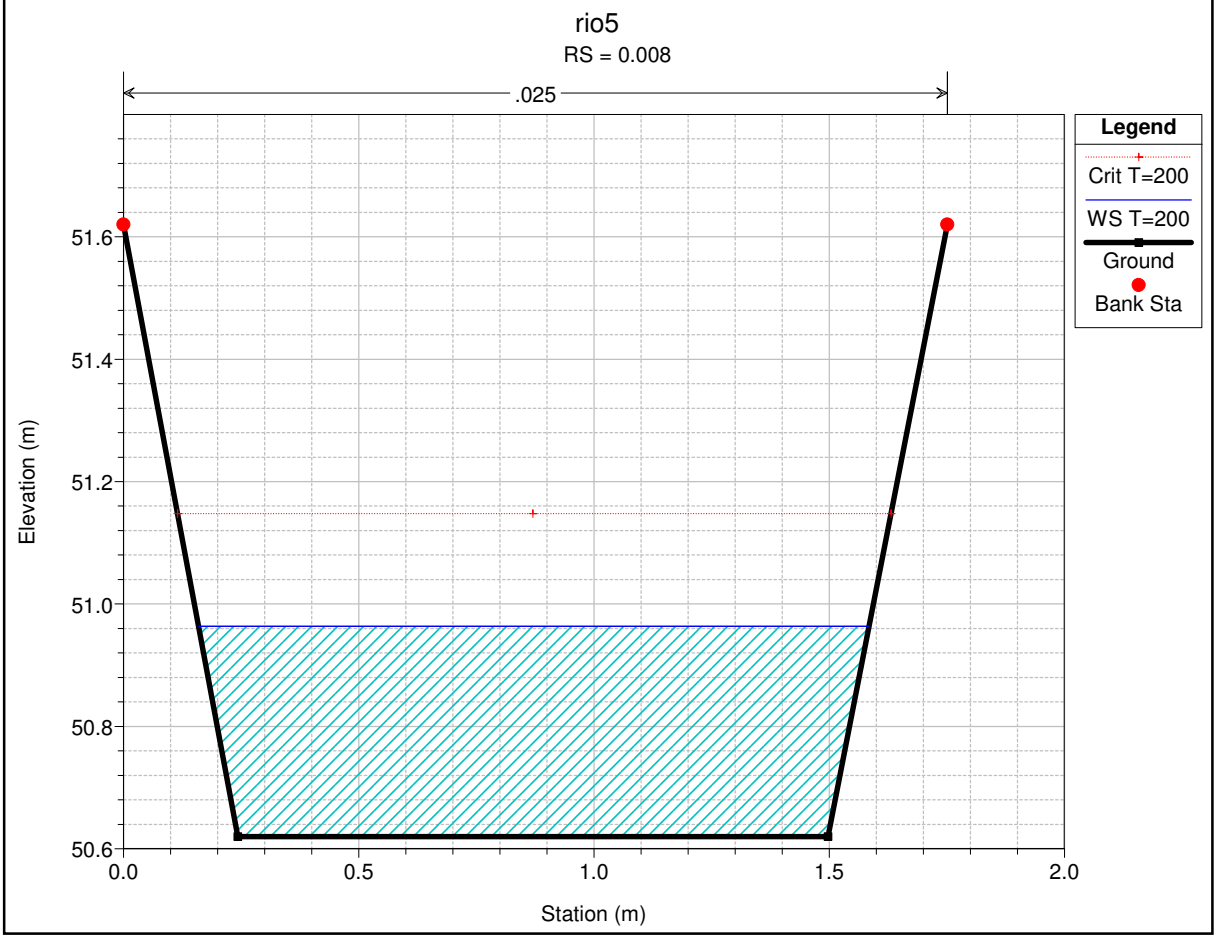

rio5
RS = 0.045
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
53.0
52.8
52.6
52.4
52.2
52.0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
Station (m)


rio5
RS = 0.038
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
52.8
52.6
52.4
52.2
52.0
51.8
0.0
0.5
1.0
1.5
2.0
Station (m)


rio5
RS = 0.032
.025
Legend
WS T=200
Crit T=200
Ground
Bank Sta
Elevation (m)
52.8
52.6
52.4
52.2
52.0
51.8
0.0
0.5
1.0
1.5
2.0
Station (m)


rio5
RS = 0.022
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
52.2
52.0
51.8
51.6
51.4
51.2
0.0
0.5
1.0
1.5
2.0
Station (m)


rio5
RS = 0.014
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
51.8
51.6
51.4
51.2
51.0
50.8
0.0
0.5
1.0
1.5
2.0
Station (m)


rio5
RS = 0.008
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
51.6
51.4
51.2
51.0
50.8
50.6
0.0
0.5
1.0
1.5
2.0
Station (m)

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
				(m)	(m)	(m3/s)
rio5	Reach 1	0.097	T=200	49.04	50.13	12.10
rio5.1	Reach 1	0.008	T=200	50.96	51.58	1.60
Junction:	2					
rio5	Reach 2	0.093	T=200	48.95	49.94	12.10

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Froude # Chl	Vel Head
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)		(m)
rio5.1	Reach 1	0.140	T=200	1.60	67.19	67.43	67.72	4.99	0.75	68.18	0.76	68.19	3.30	1.27
rio5.1	Reach 1	0.128	T=200	1.60	65.54	65.79	66.07	4.90	0.75	66.54	0.76	66.55	3.21	1.22
rio5.1	Reach 1	0.118	T=200	1.60	64.06	64.32	64.60	4.91	0.73	65.05	0.76	65.08	3.22	1.23
rio5.1	Reach 1	0.112	T=200	1.60	63.21	63.46	63.74	4.93	0.75	64.21	0.75	64.21	3.24	1.24
rio5.1	Reach 1	0.109	T=200	1.60	62.92	63.20	63.46	4.67	0.71	63.91	0.76	63.96	2.99	1.11
rio5.1	Reach 1	0.103	T=200	1.60	61.11	61.31	61.64	6.02	0.80	62.11	0.80	62.11	4.34	1.84
rio5.1	Reach 1	0.099	T=200	1.60	60.89	61.15	61.42	4.65	0.74	61.89	0.74	61.89	2.98	1.10
rio5.1	Reach 1	0.093	T=200	1.60	60.56	60.88	61.09	3.76	0.68	61.56	0.68	61.56	2.19	0.72
rio5.1	Reach 1	0.087	T=200	1.60	58.77	59.00	59.32	5.90	0.76	59.76	0.83	59.83	4.22	1.78
rio5.1	Reach 1	0.081	T=200	1.60	57.16	57.36	57.68	6.08	0.80	58.16	0.80	58.16	4.43	1.89
rio5.1	Reach 1	0.074	T=200	1.60	57.21	57.98	57.74	1.46	0.35	58.33	0.35	58.33	0.56	0.11
rio5.1	Reach 1	0.068	T=200	1.60	57.26	57.79	57.79	2.18	0.48	58.27	0.47	58.26	1.00	0.24
rio5.1	Reach 1	0.065	T=200	1.60	56.13	56.36	56.66	5.31	0.77	57.13	0.78	57.14	3.61	1.44
rio5.1	Reach 1	0.063	T=200	1.60	55.90	56.13	56.42	5.18	0.78	56.91	0.77	56.90	3.54	1.37
rio5.1	Reach 1	0.059	T=200	1.60	53.88	54.18	54.52	6.57	0.65	54.83	0.97	55.15	4.92	2.20
rio5.1	Reach 1	0.054	T=200	1.60	52.11	52.27	52.59	6.85	0.84	53.11	0.84	53.11	5.62	2.39
rio5.1	Reach 1	0.045	T=200	1.60	52.02	52.36	52.55	3.56	0.67	53.03	0.66	53.02	2.02	0.65
rio5.1	Reach 1	0.038	T=200	1.60	51.96	52.53	52.49	2.02	0.43	52.96	0.43	52.96	0.90	0.21
rio5.1	Reach 1	0.032	T=200	1.60	51.88	52.41	52.41	2.18	0.47	52.88	0.48	52.89	1.00	0.24
rio5.1	Reach 1	0.022	T=200	1.60	51.36	51.69	51.89	3.61	0.66	52.35	0.67	52.36	2.06	0.66
rio5.1	Reach 1	0.014	T=200	1.60	50.93	51.28	51.46	3.46	0.65	51.93	0.65	51.93	1.94	0.61
rio5.1	Reach 1	0.008	T=200	1.60	50.62	50.96	51.15	3.48	0.66	51.62	0.66	51.62	1.95	0.62
rio5	Reach 1	0.119	T=200	12.10	50.50	51.12	51.91	8.80	7.28	58.40	7.28	58.40	3.76	3.95
rio5	Reach 1	0.117	T=200	12.10	48.98	49.22	49.79	9.81	4.78	54.00	4.78	54.00	6.48	4.90
rio5	Reach 1	0.100	T=200	12.10	48.63	49.03	49.41	5.44	2.60	51.63	2.60	51.63	2.83	1.51
rio5	Reach 1	0.097	T=200	12.10	48.56	49.00	49.35	5.00	2.56	51.56	2.56	51.56	2.49	1.28
rio5	Reach 2	0.093	T=200	12.10	48.47	48.93	49.25	4.67	2.57	51.50	2.53	51.46	2.32	1.11
rio5	Reach 2	0.084	T=200	12.10	48.29	48.85	49.09	3.92	2.45	51.30	2.44	51.29	1.76	0.78
rio5	Reach 2	0.059	T=200	12.10	47.79	48.40	48.58	3.52	2.40	50.80	2.38	50.78	1.51	0.63
rio5	Reach 2	0.027	T=200	12.10	47.16	47.76	47.95	3.59	2.41	50.17	2.40	50.16	1.56	0.66
rio5	Reach 2	0.005	T=200	12.10	46.71	47.32	47.51	3.57	2.39	49.71	2.40	49.72	1.54	0.65
rio5	Reach 2	0.000	T=200	12.10	46.61	47.22	47.41	3.57	2.39	49.61	2.40	49.62	1.54	0.65

VERIFICA IDRAULICA

RIO 6 - Tratto di monte

FASE DI COLTIVAZIONE

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

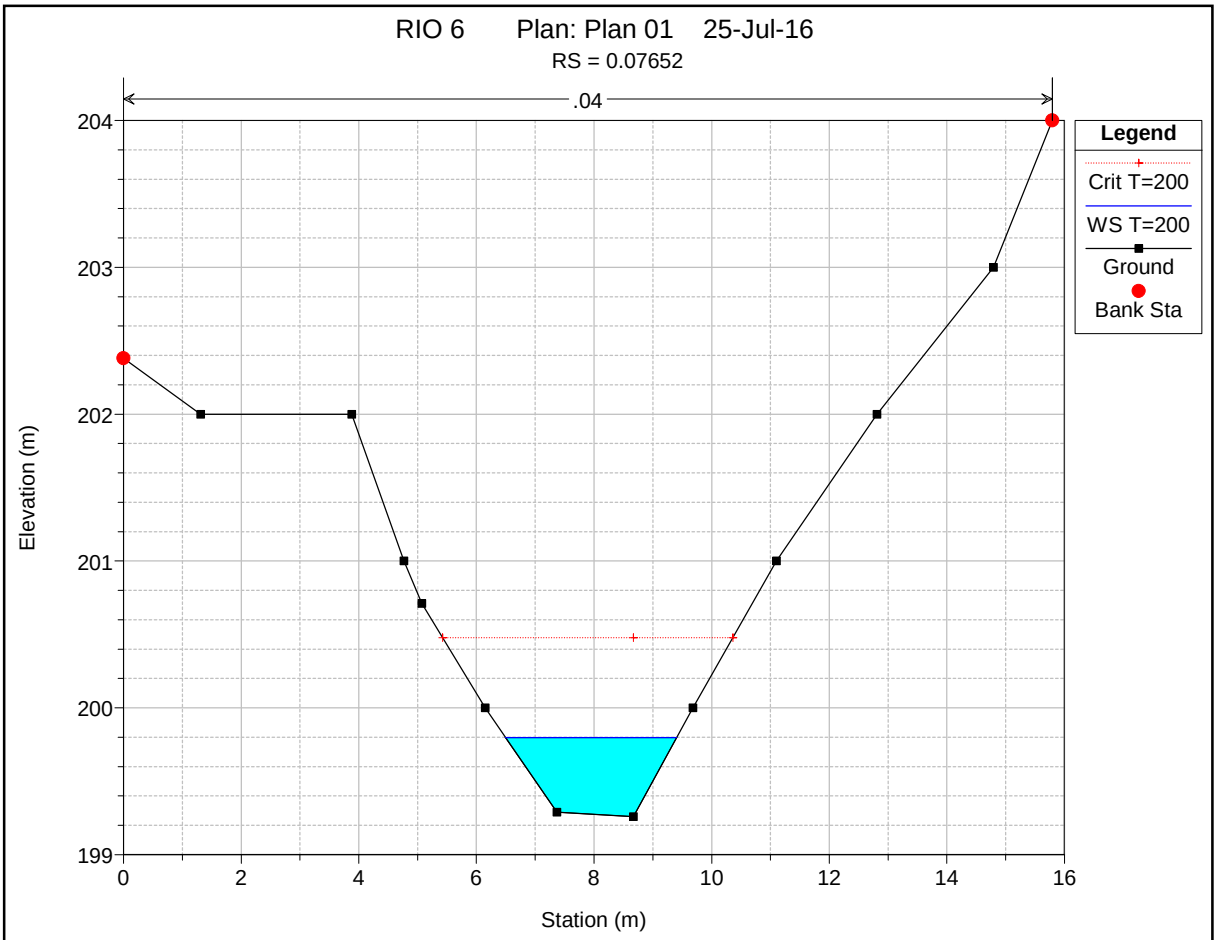
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

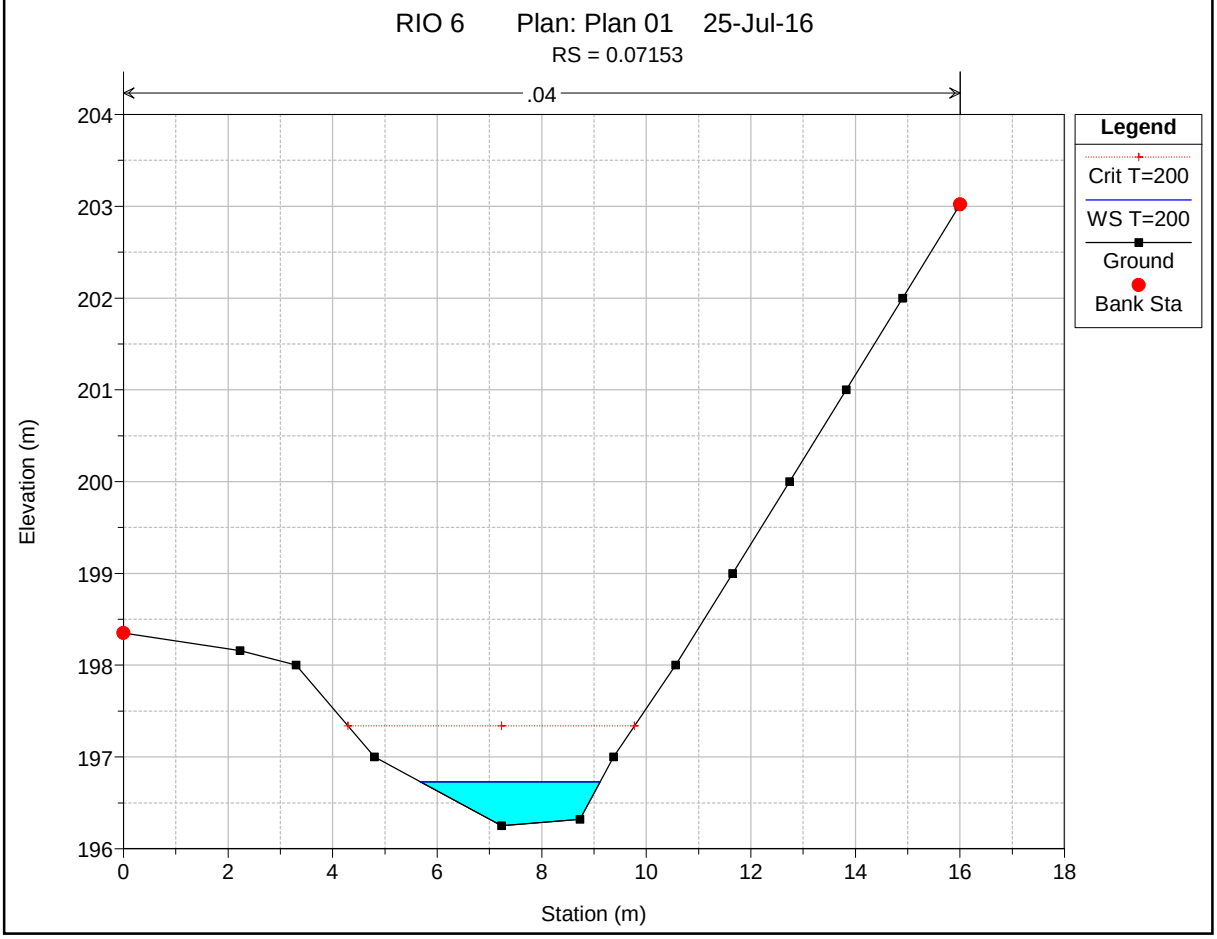
Vel Chnl = Velocità della corrente nel canale.

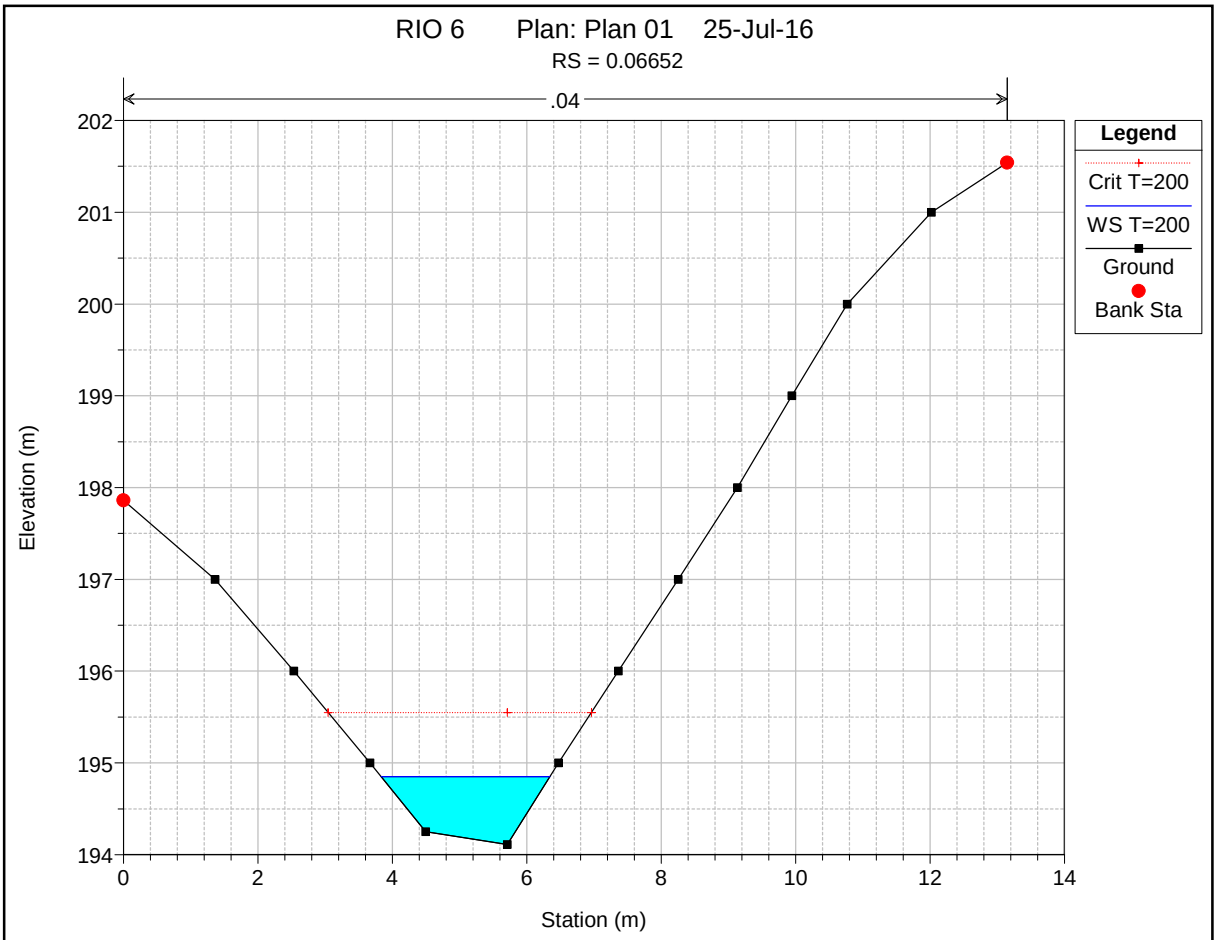
Froude = n° di froude della corrente.

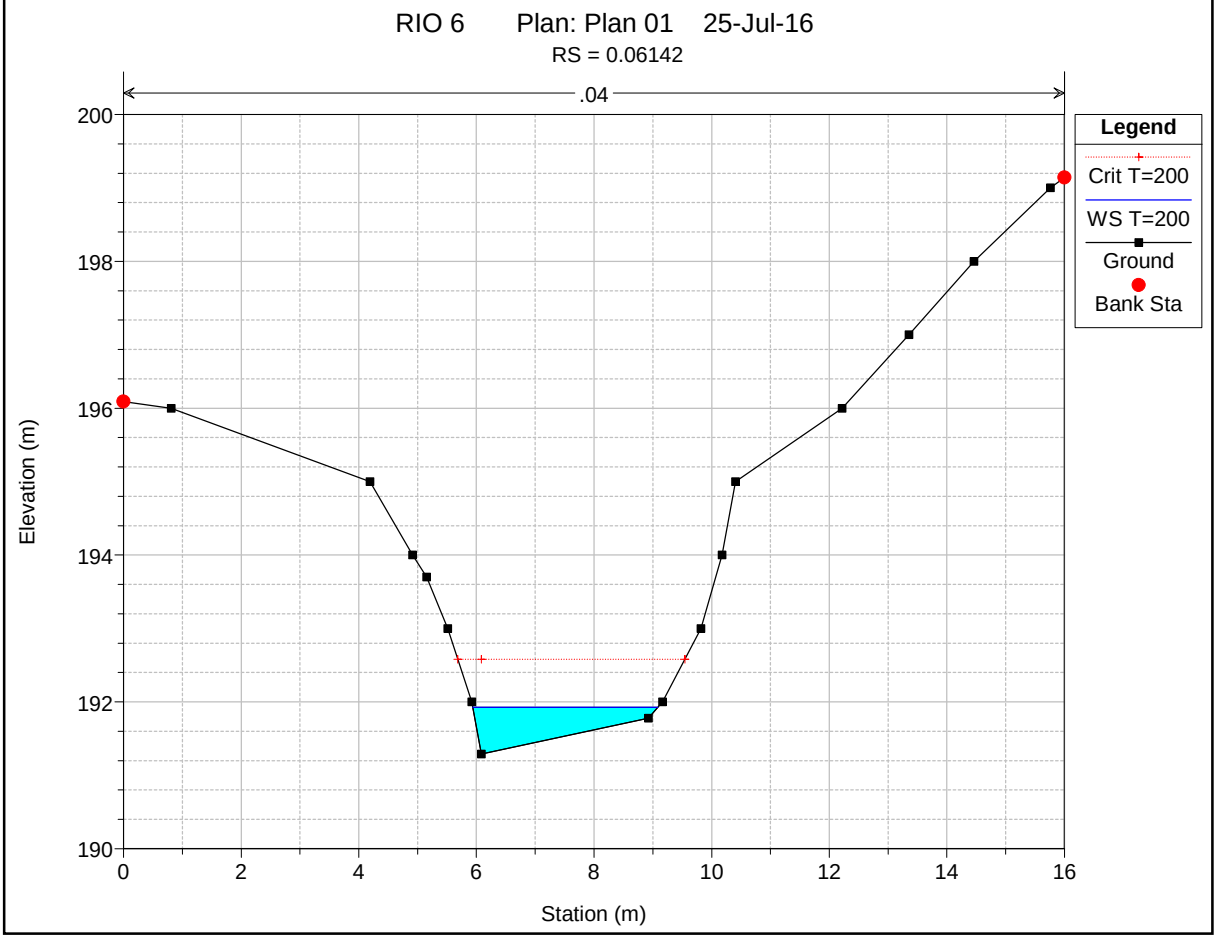
Vel. Head = $U^2/2g$.

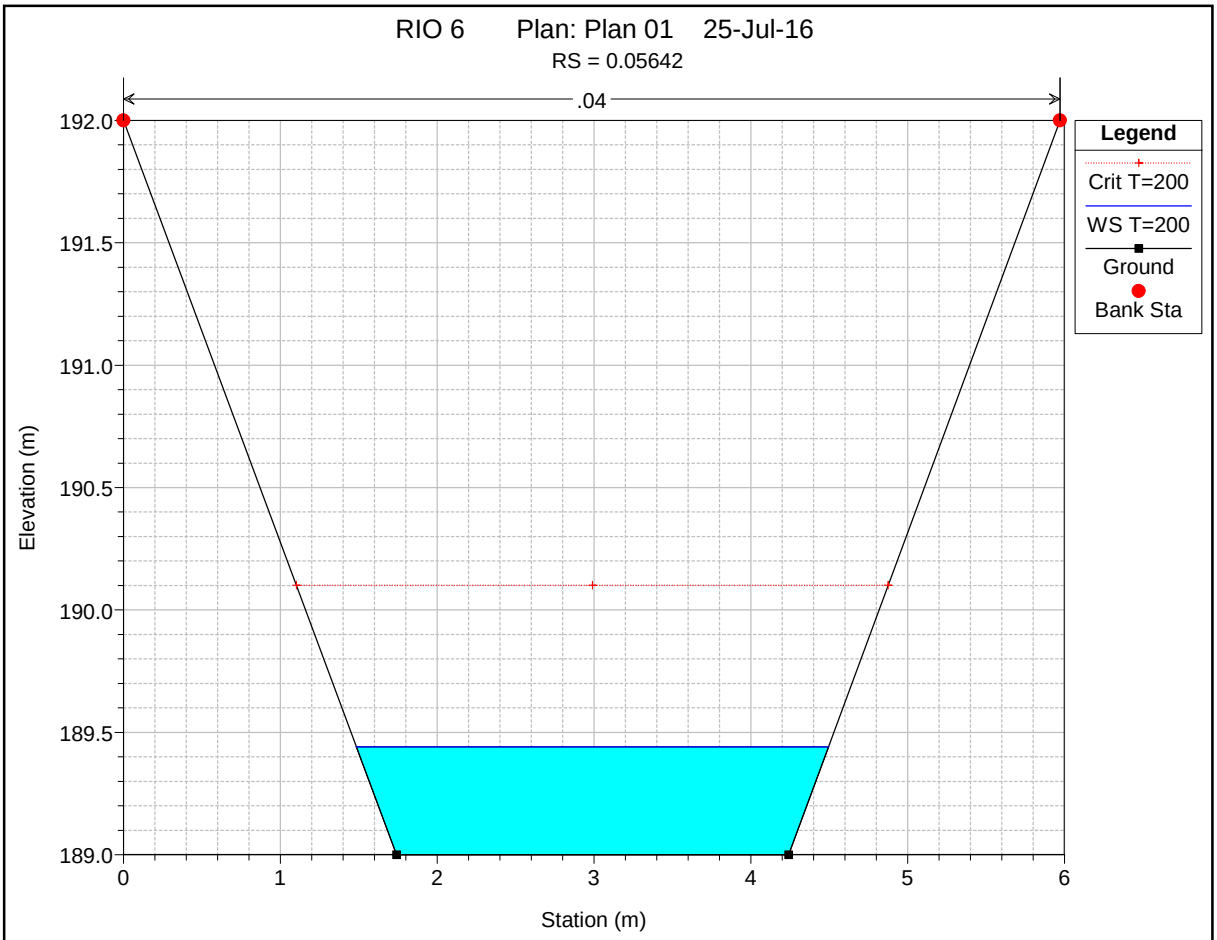
STATO di PROGETTO

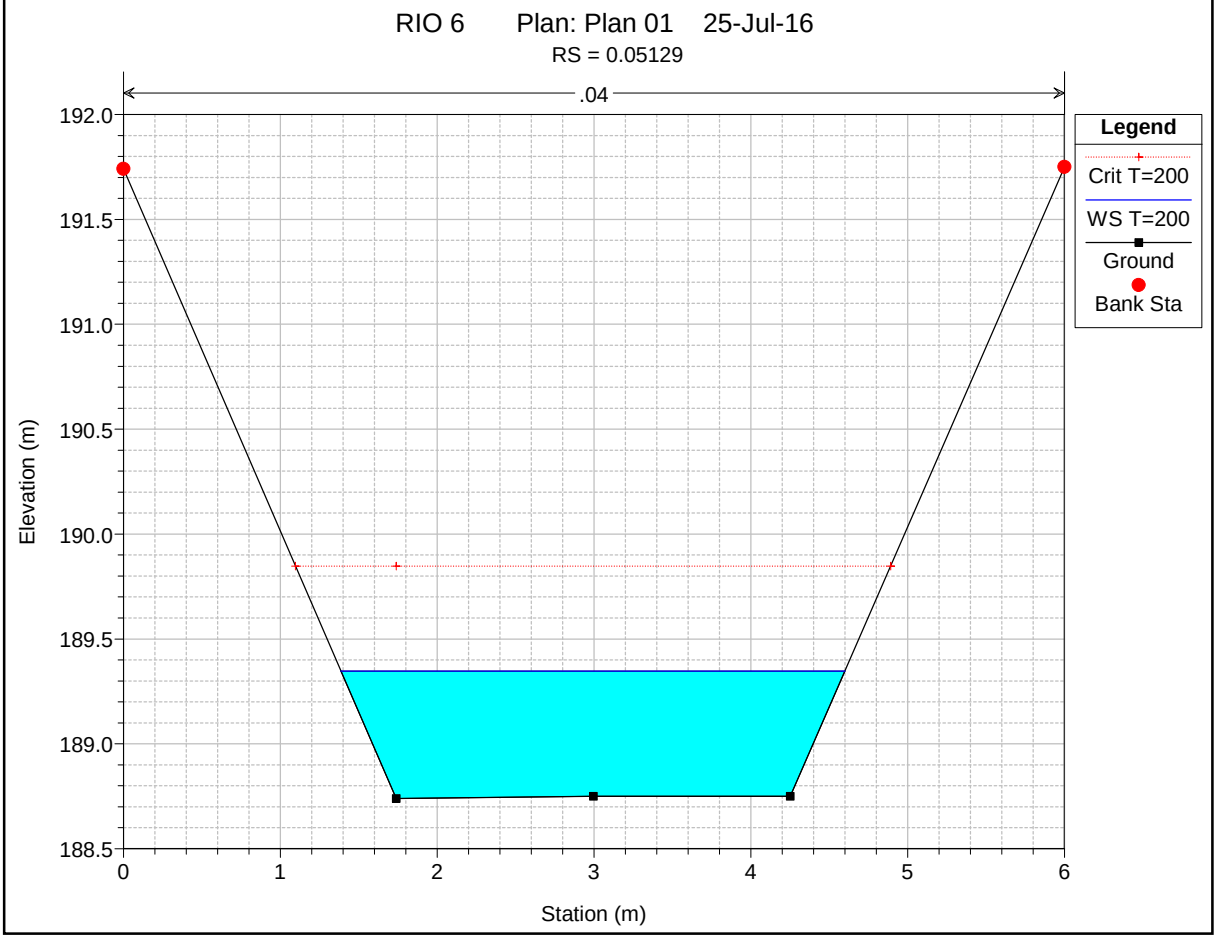

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07652
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204
203
202
201
200
199
0
2
4
6
8
10
12
14
16

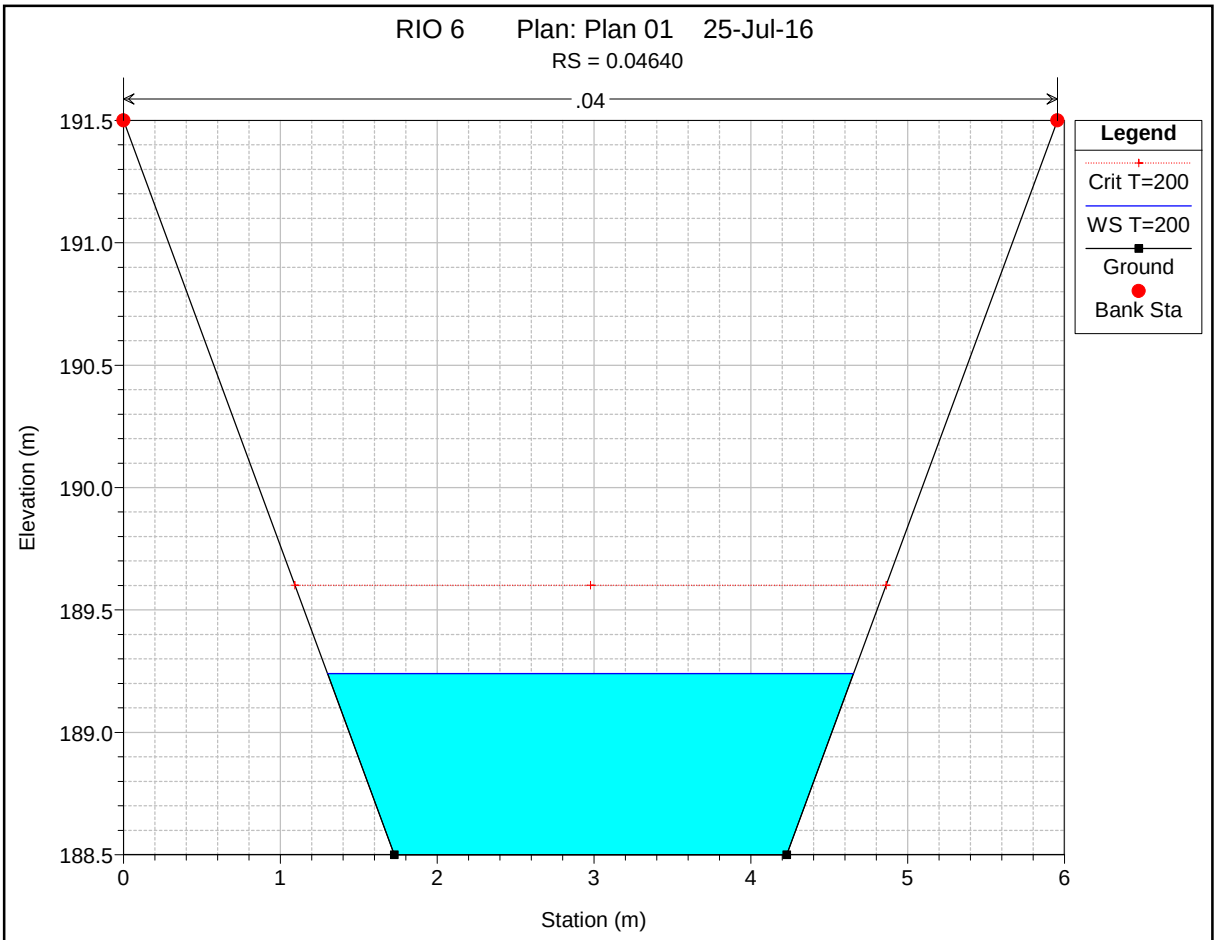

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07153
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204
203
202
201
200
199
198
197
196
0
2
4
6
8
10
12
14
16
18

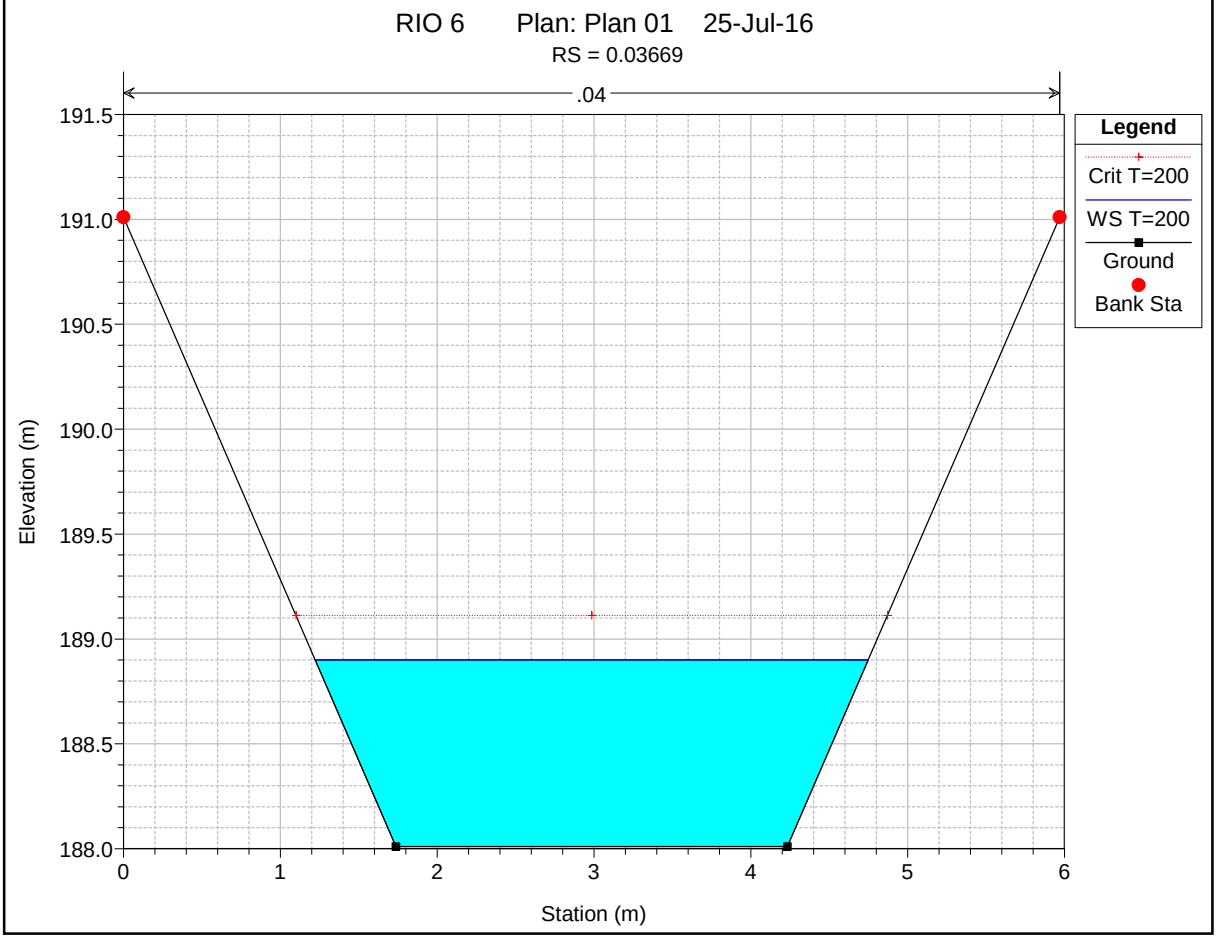

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06652
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202
201
200
199
198
197
196
195
194
0
2
4
6
8
10
12
14

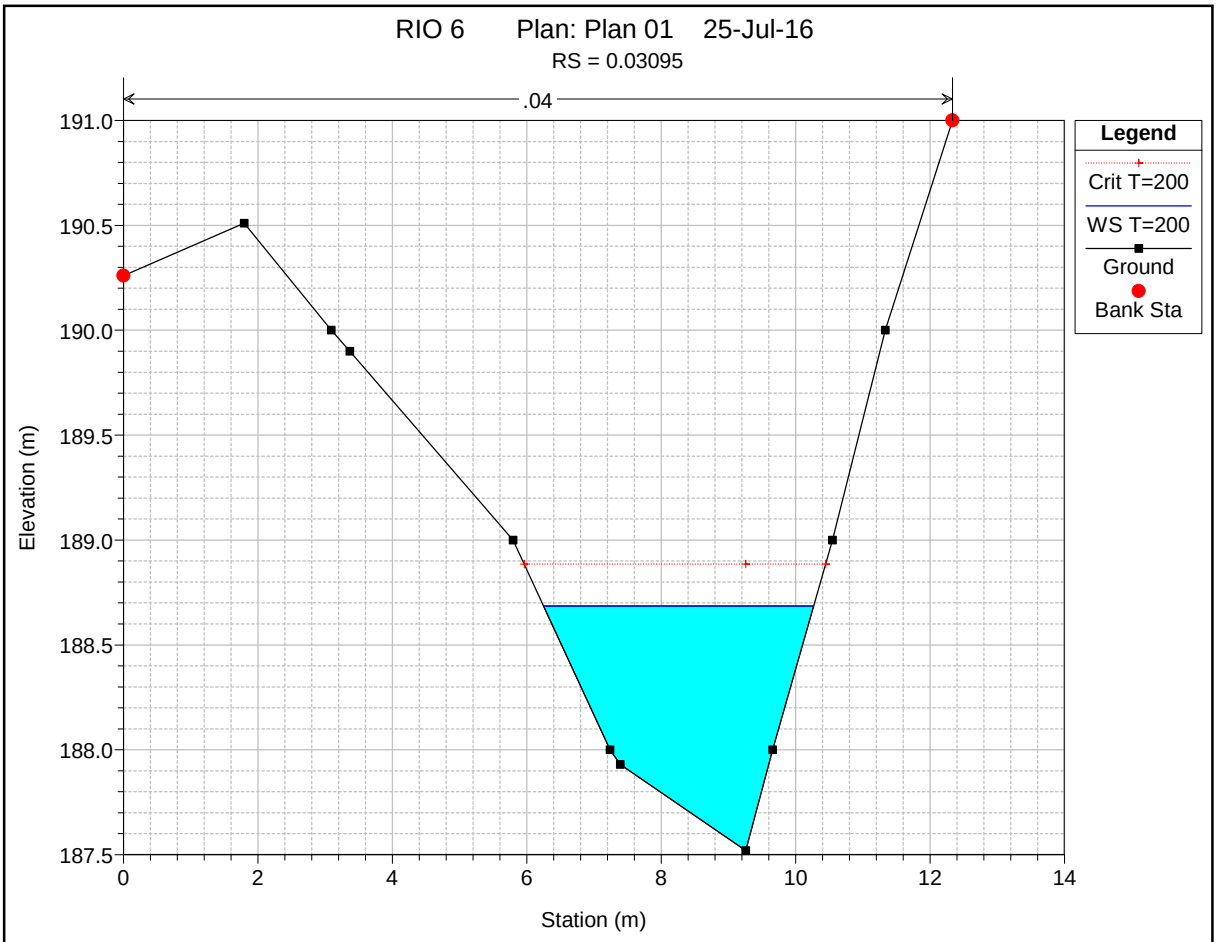

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06142
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
200
198
196
194
192
190
0
2
4
6
8
10
12
14
16

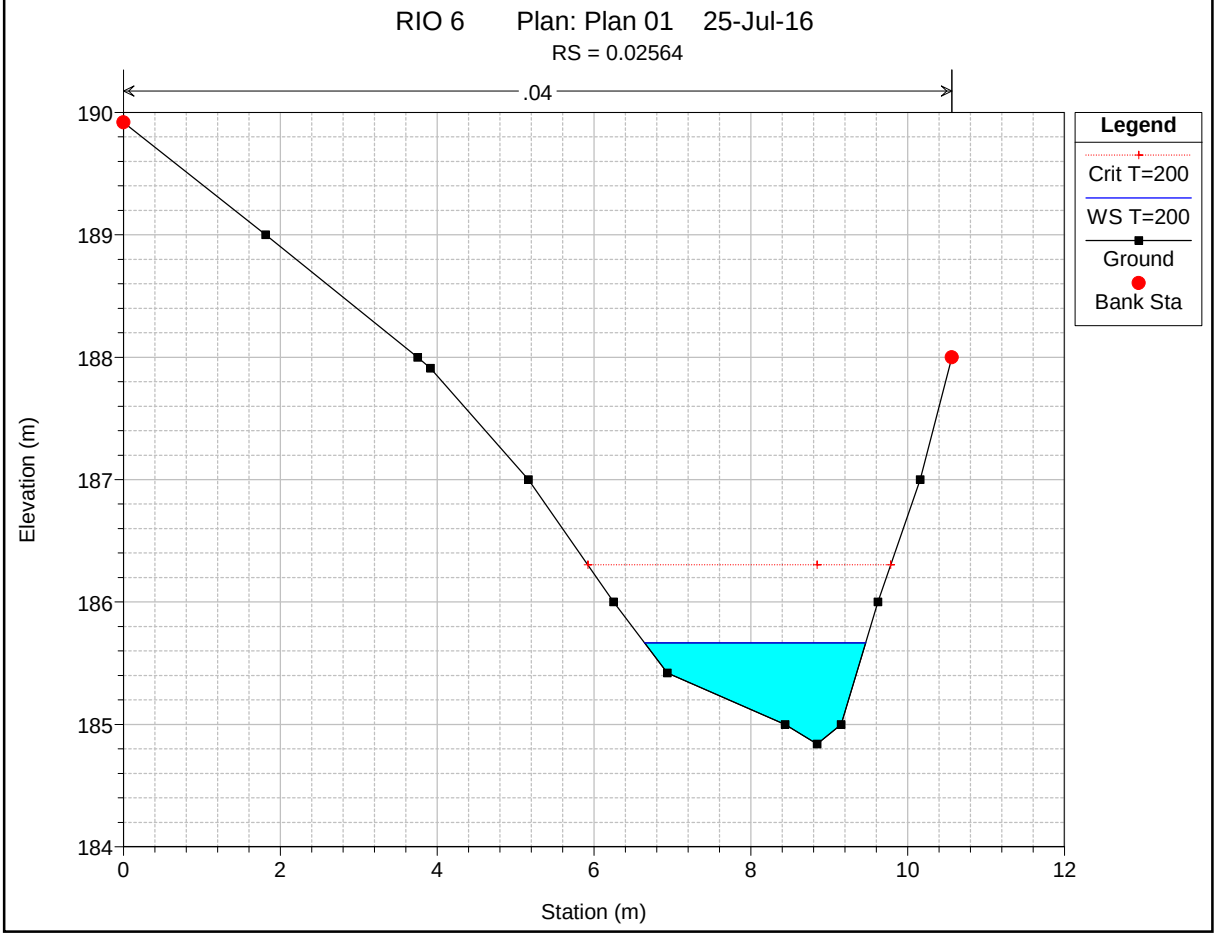

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05642
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
192.0
191.5
191.0
190.5
190.0
189.5
189.0
0
1
2
3
4
5
6

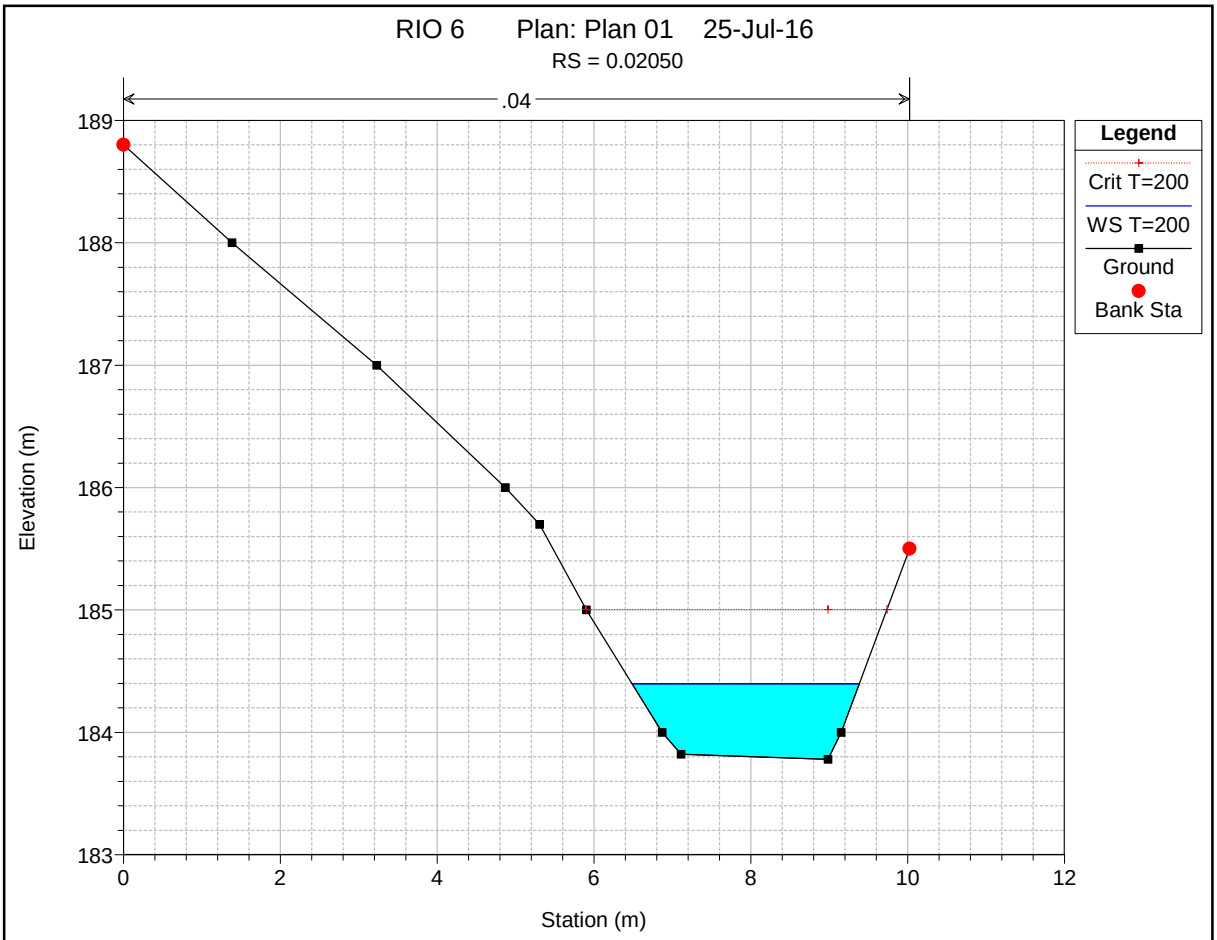

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05129
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
192.0
191.5
191.0
190.5
190.0
189.5
189.0
188.5
0
1
2
3
4
5
6

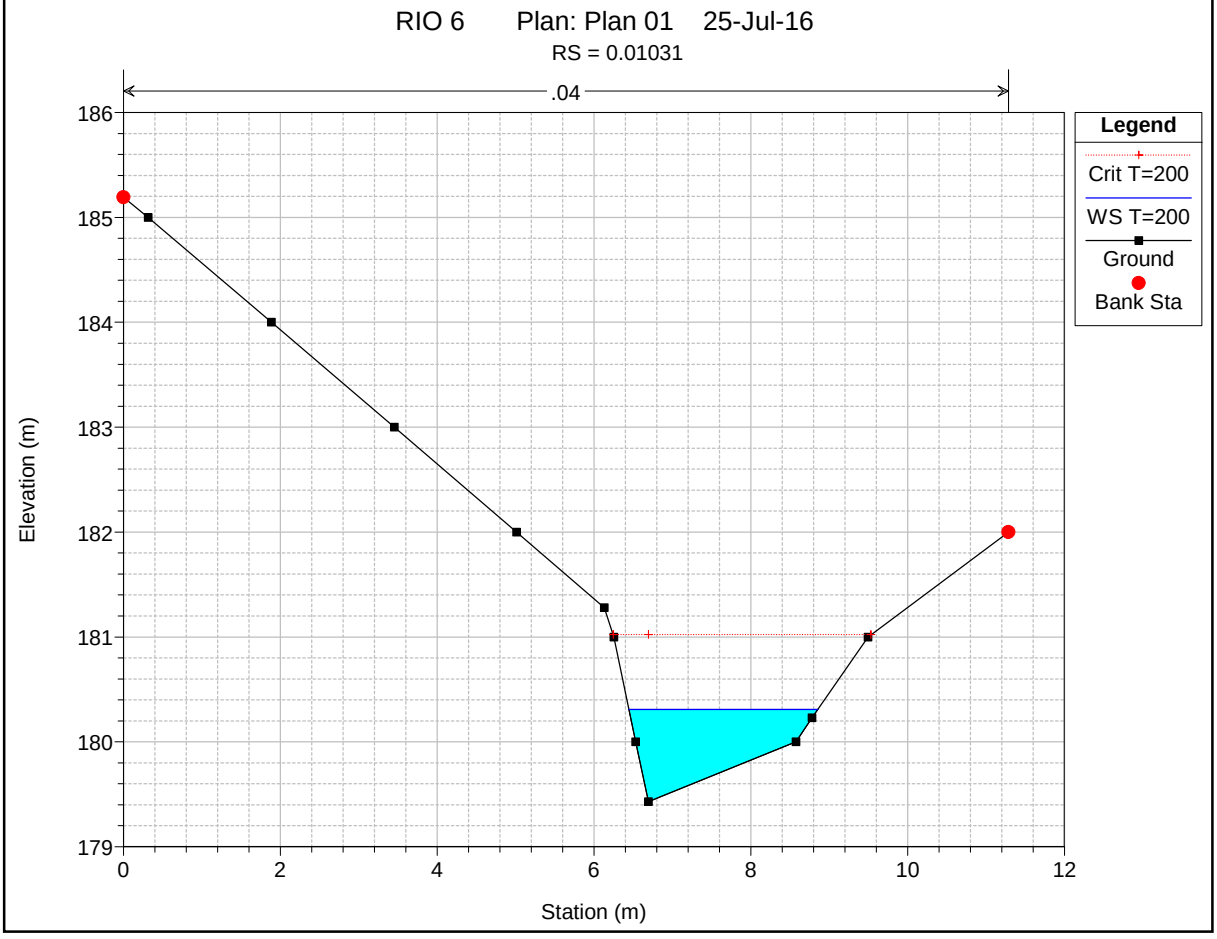

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04640
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
191.5
191.0
190.5
190.0
189.5
189.0
188.5
0
1
2
3
4
5
6

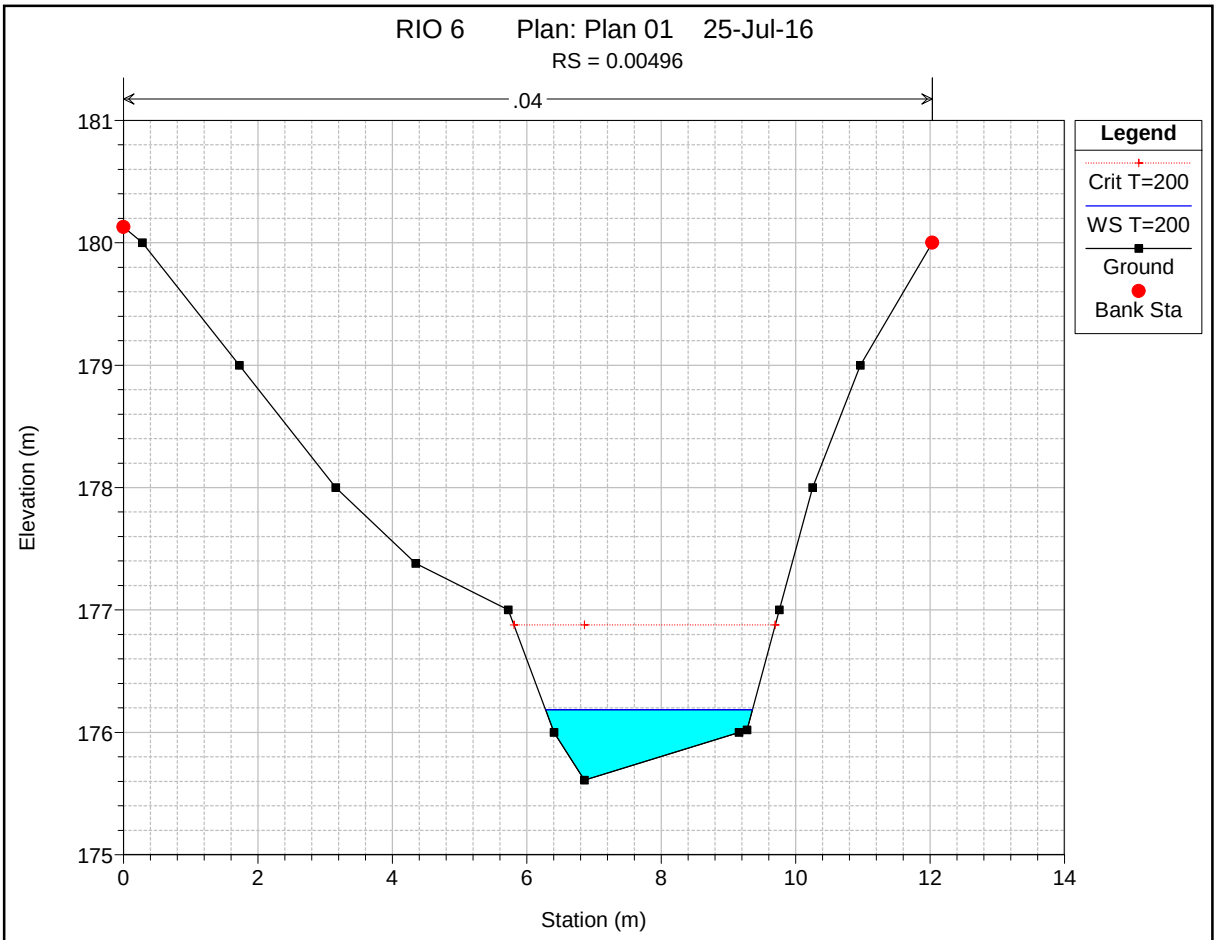

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03669
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
191.5
191.0
190.5
190.0
189.5
189.0
188.5
188.0
0
1
2
3
4
5
6

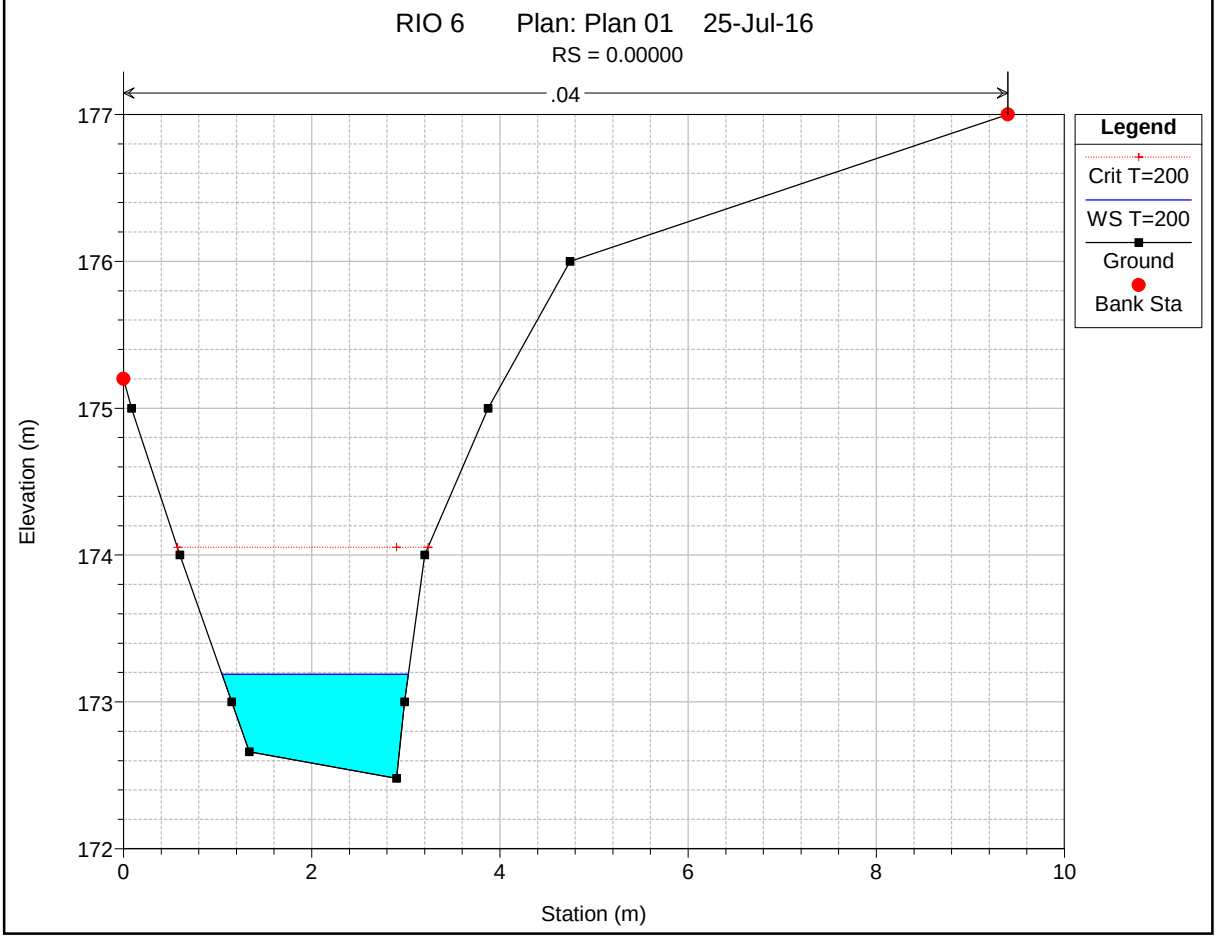

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03095
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
191.0
190.5
190.0
189.5
189.0
188.5
188.0
187.5
0
2
4
6
8
10
12
14

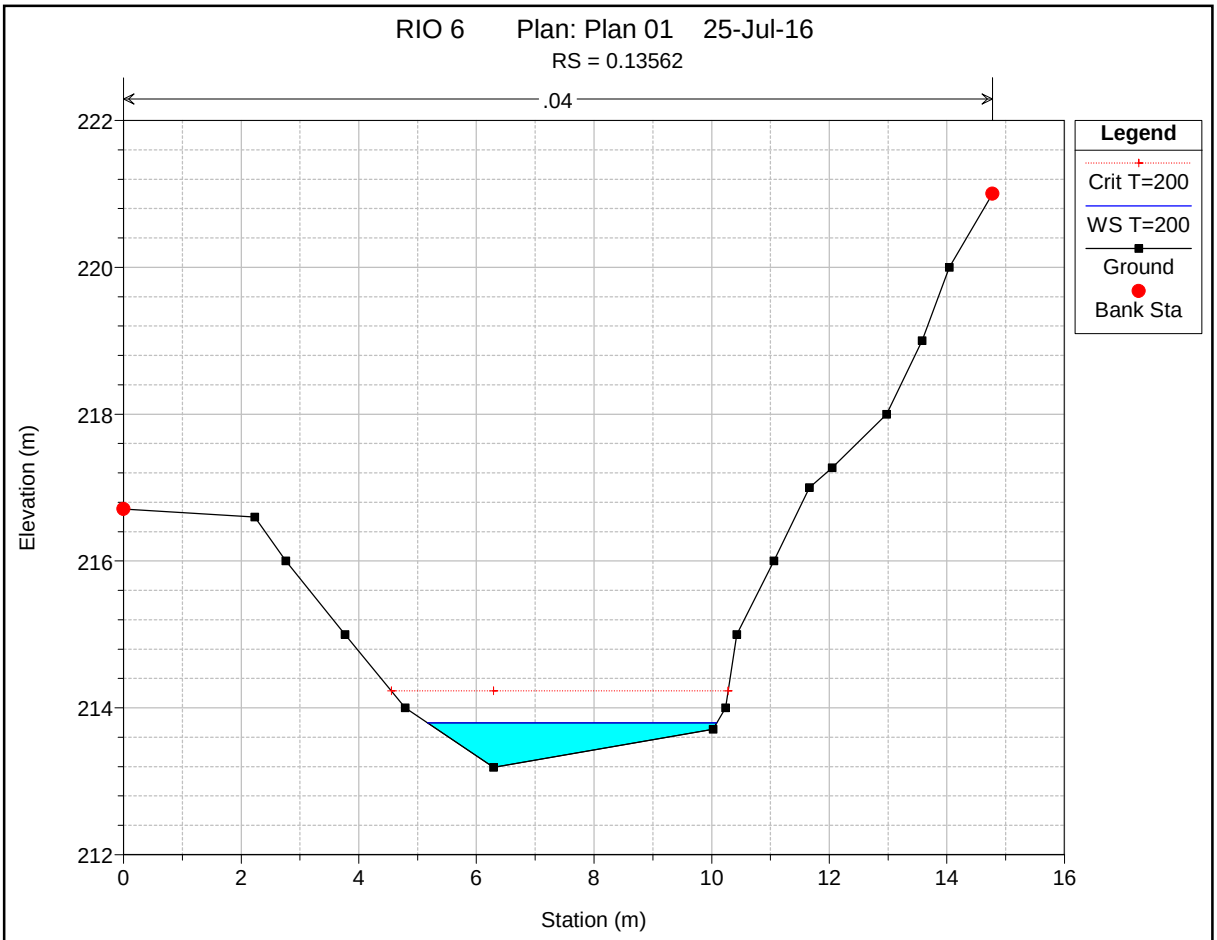

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02564
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
190
189
188
187
186
185
184
0
2
4
6
8
10
12

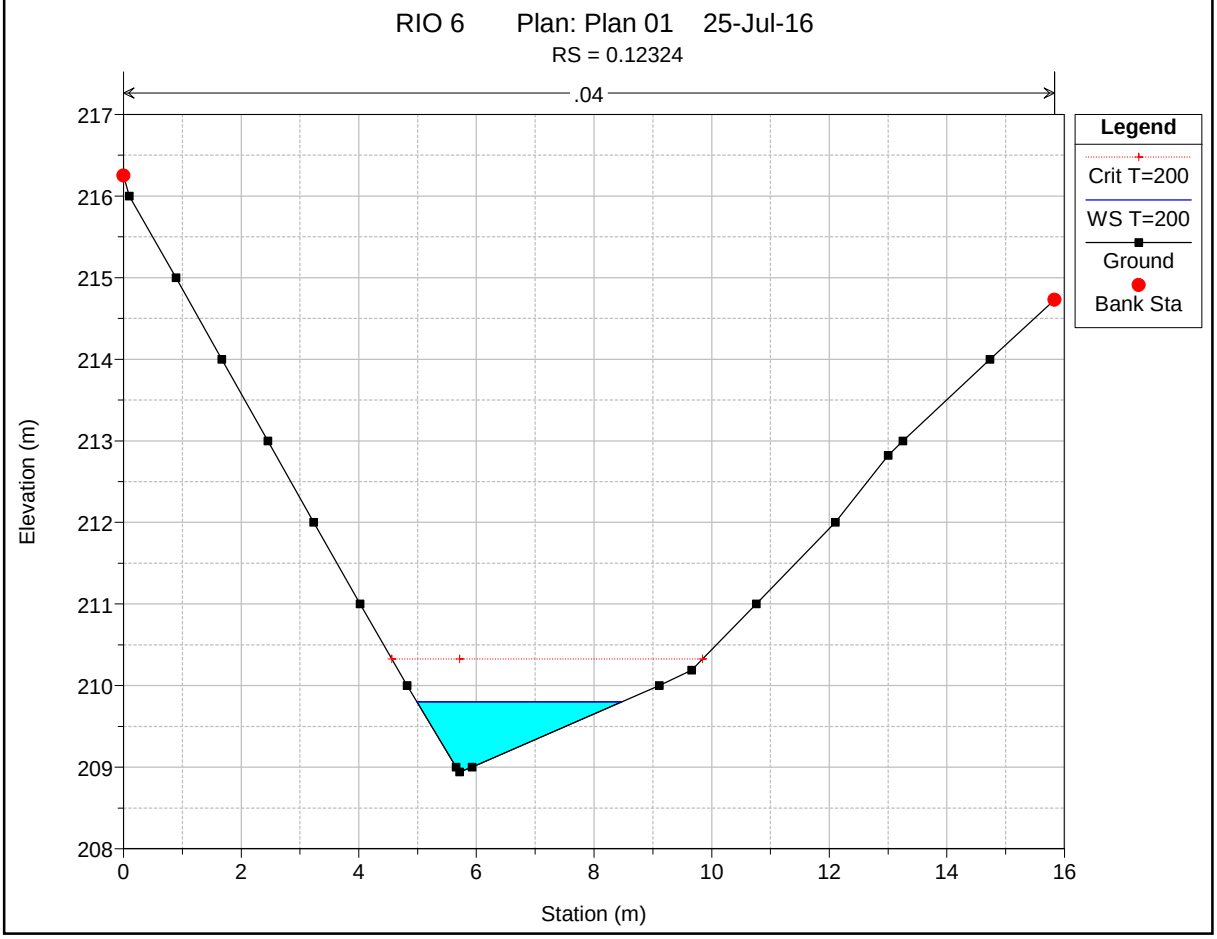

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02050
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
189
188
187
186
185
184
183
0
2
4
6
8
10
12

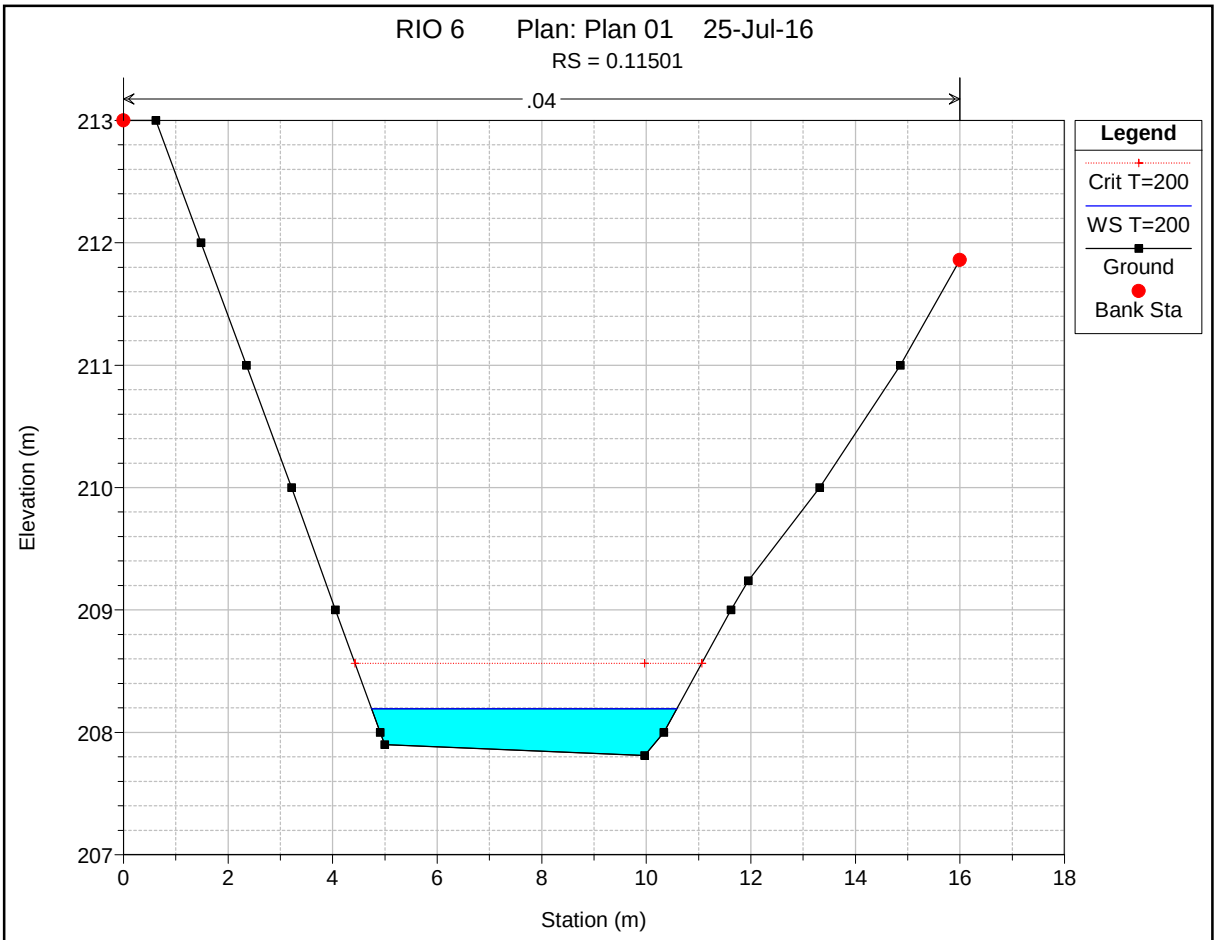

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01031
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
186
185
184
183
182
181
180
179
0
2
4
6
8
10
12

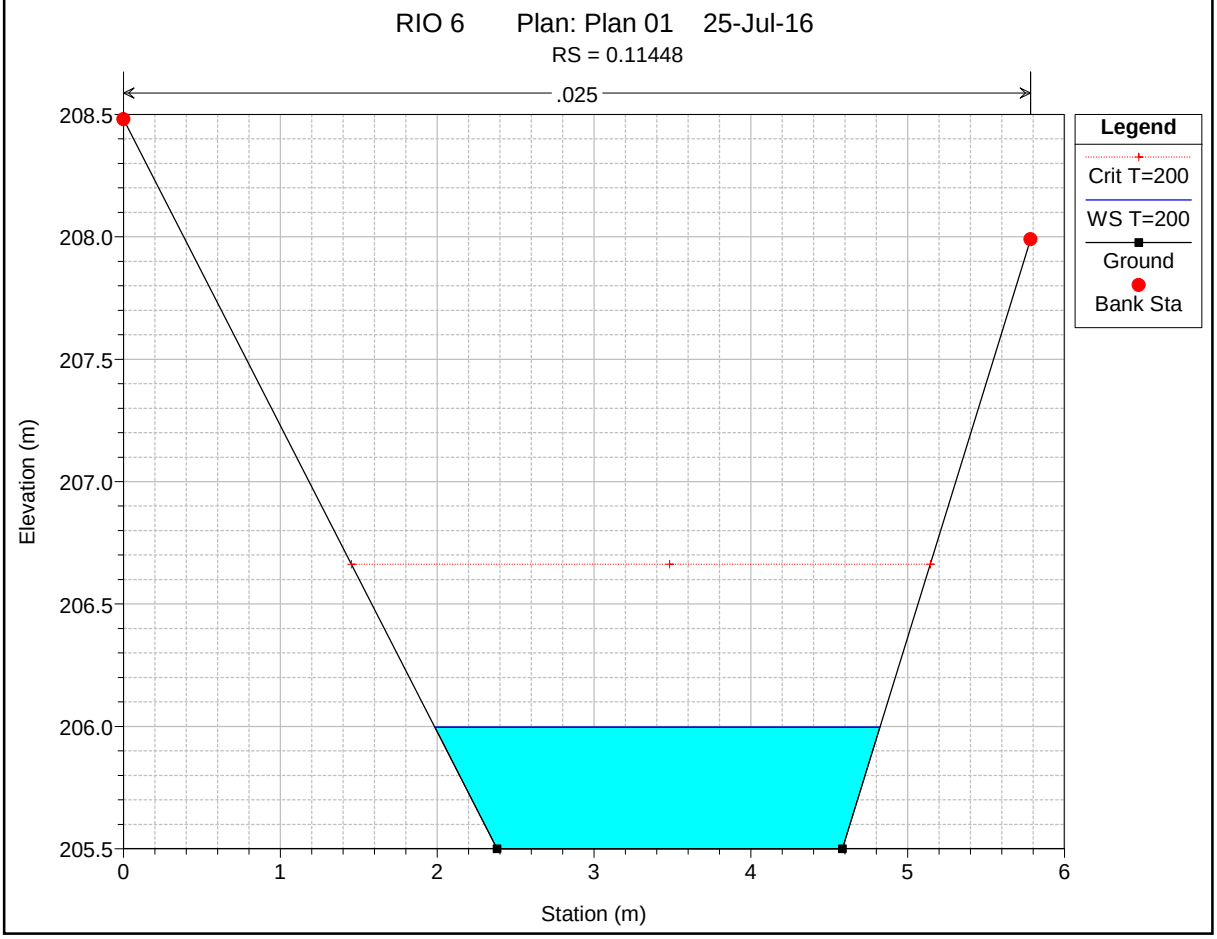

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00496
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
181
180
179
178
177
176
175
0
2
4
6
8
10
12
14

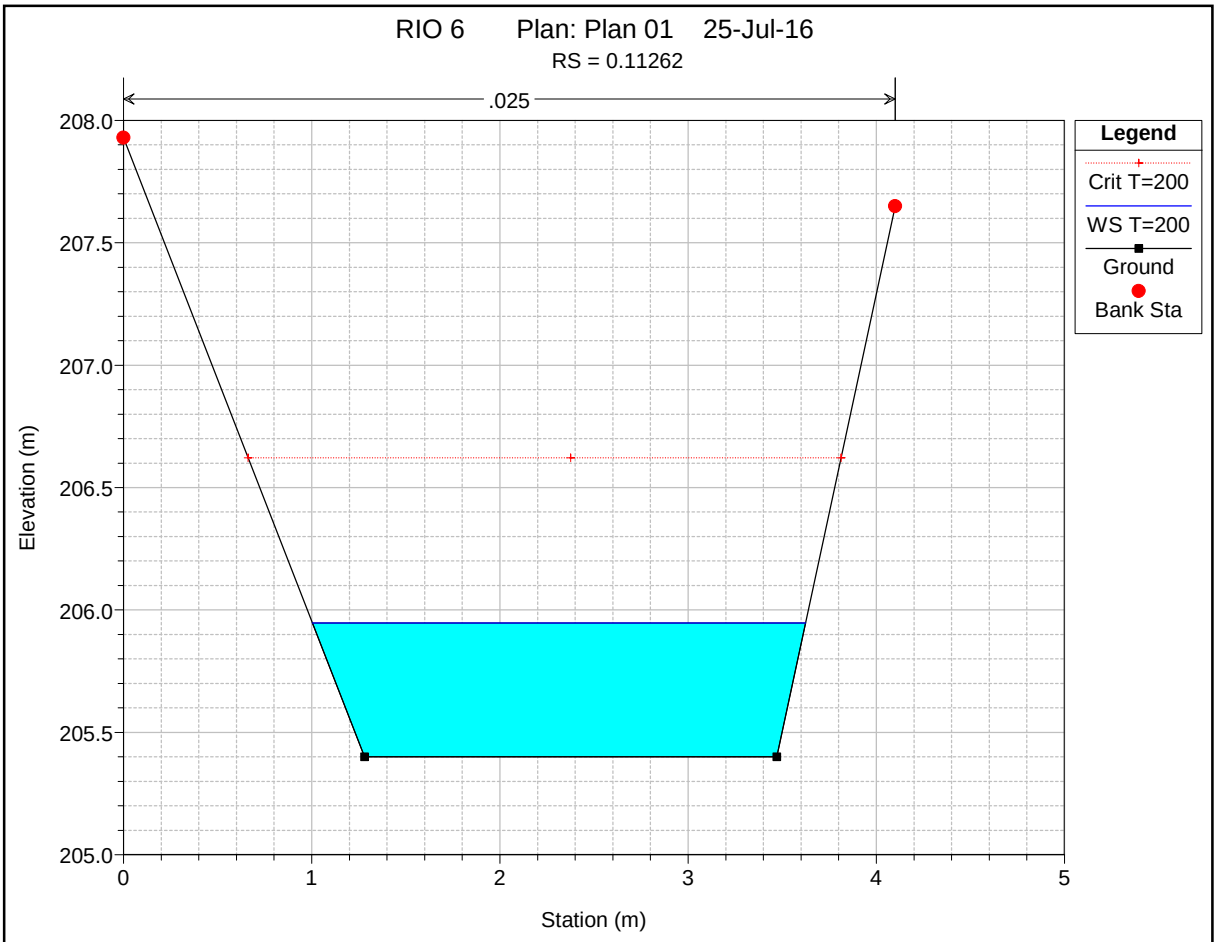

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00000
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
177
176
175
174
173
172
0
2
4
6
8
10

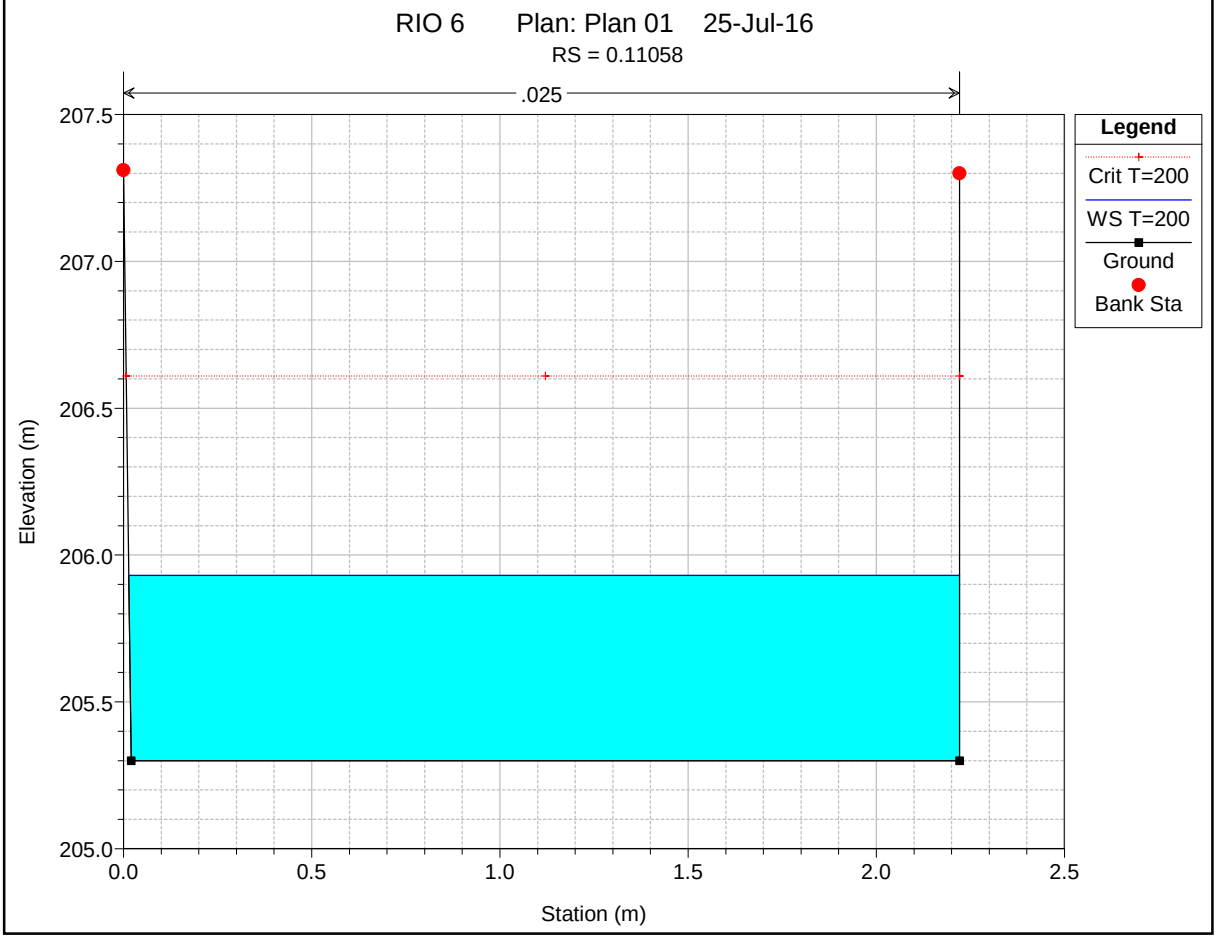

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.13562
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
222
220
218
216
214
212
0
2
4
6
8
10
12
14
16

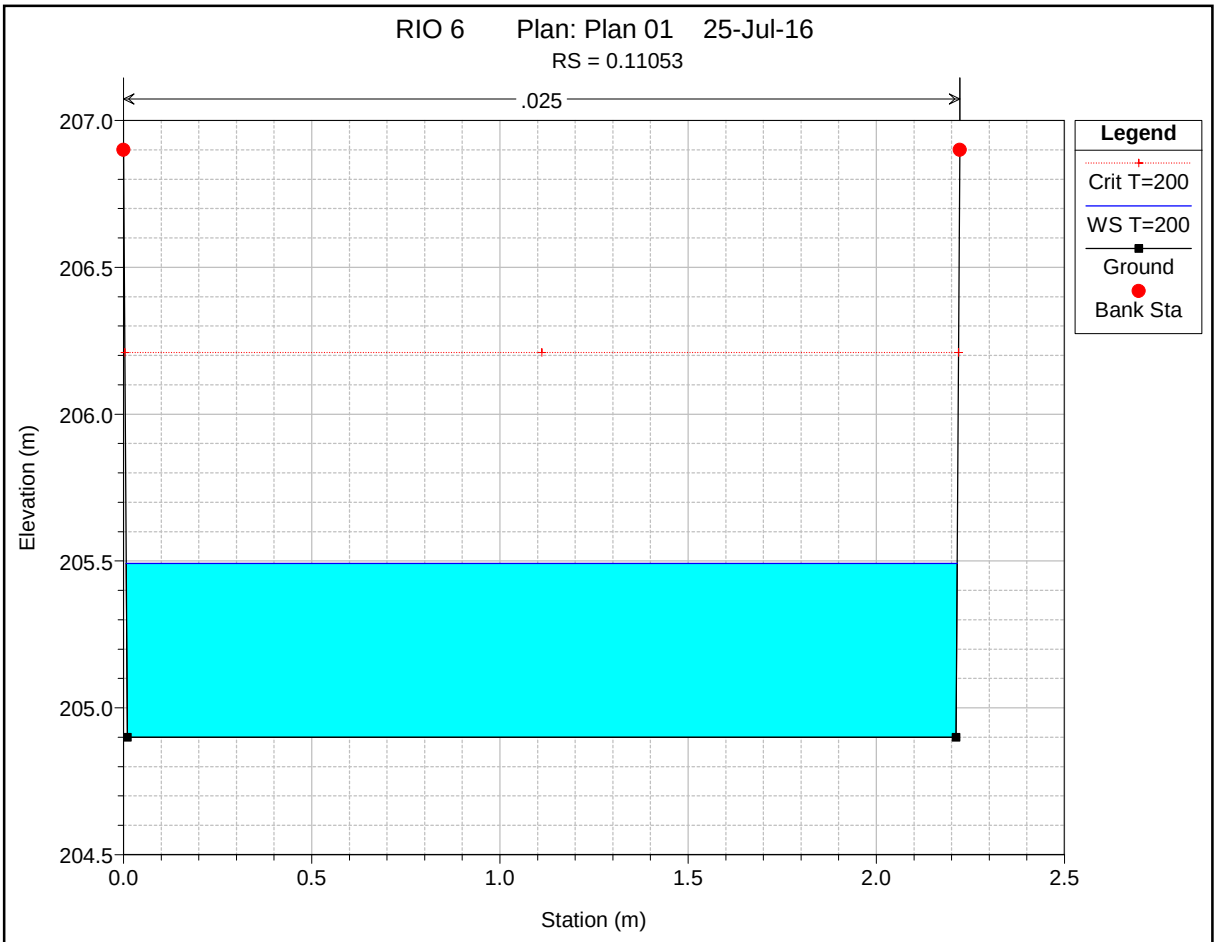

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.12324
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
217
216
215
214
213
212
211
210
209
208
0
2
4
6
8
10
12
14
16

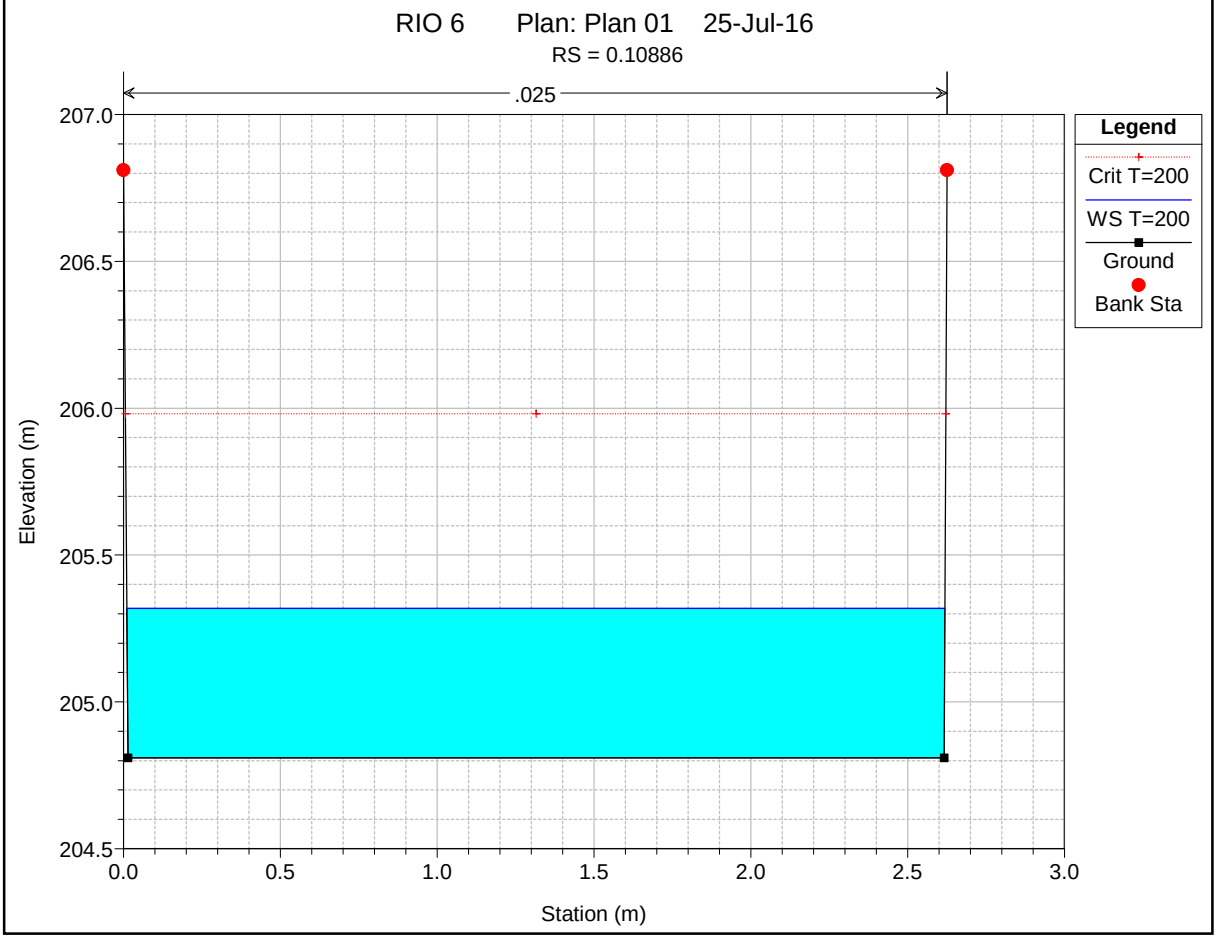

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11501
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
213
212
211
210
209
208
207
0
2
4
6
8
10
12
14
16
18

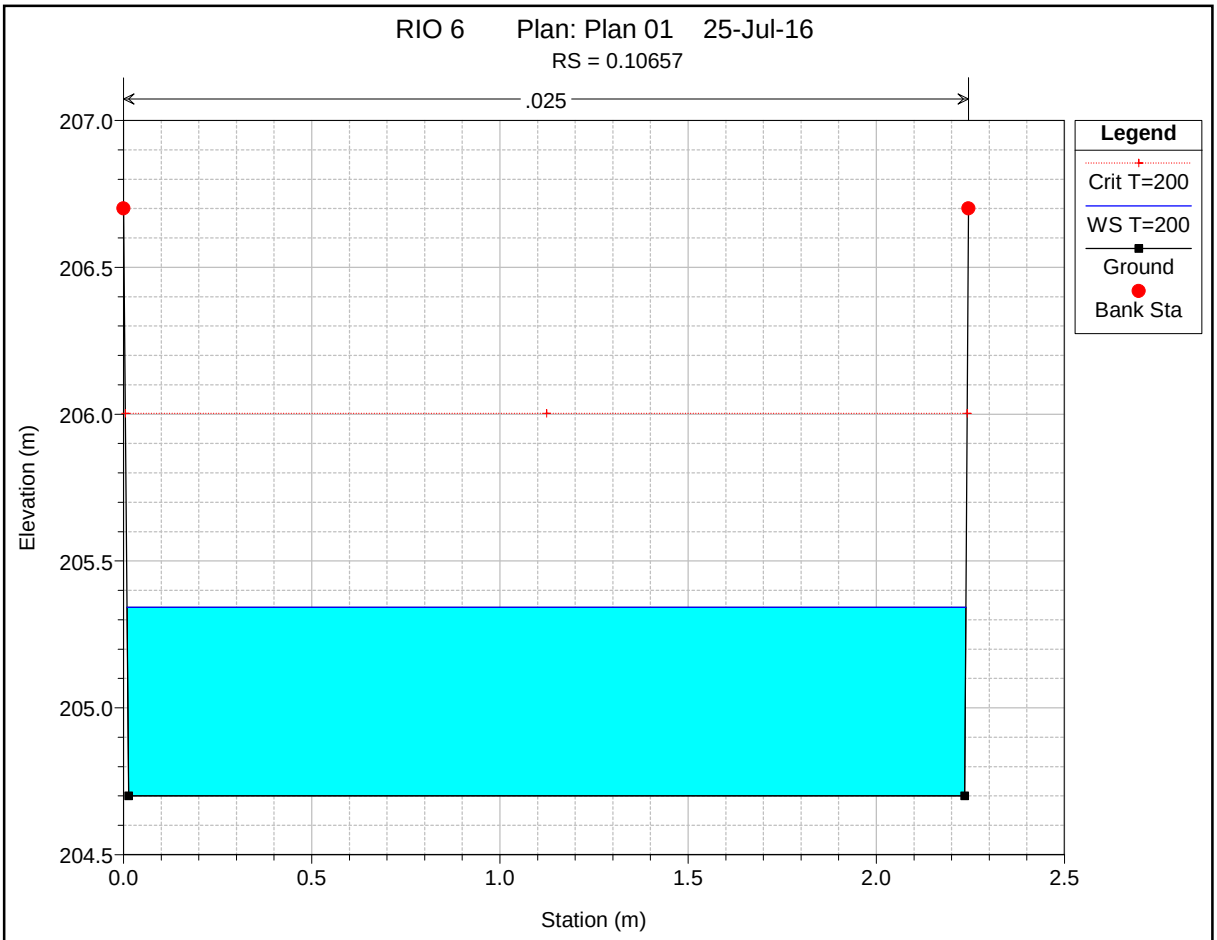

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11448
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
208.5
208.0
207.5
207.0
206.5
206.0
205.5
0
1
2
3
4
5
6

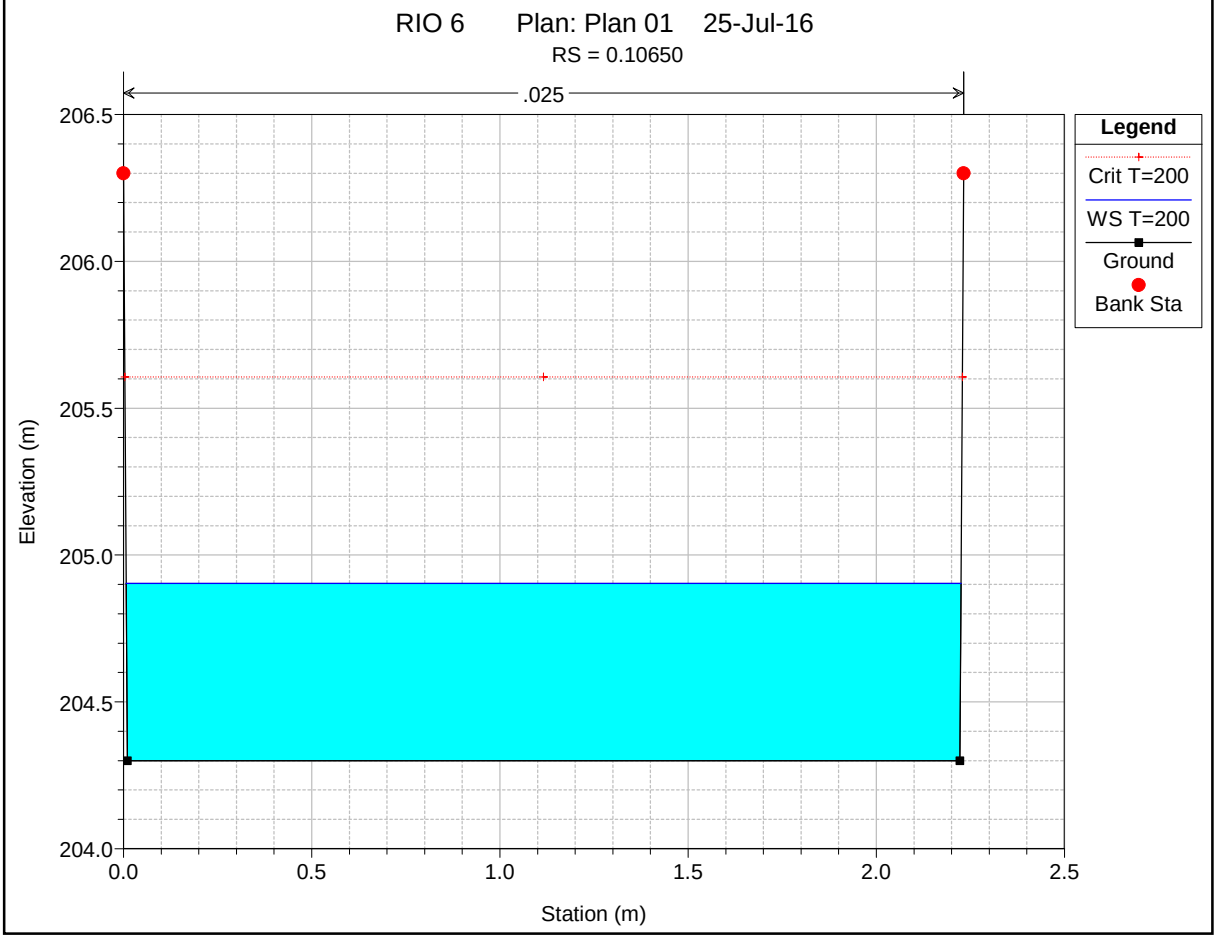

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11262
.025
208.0
207.5
207.0
206.5
206.0
205.5
205.0
Elevation (m)
0
1
2
3
4
5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

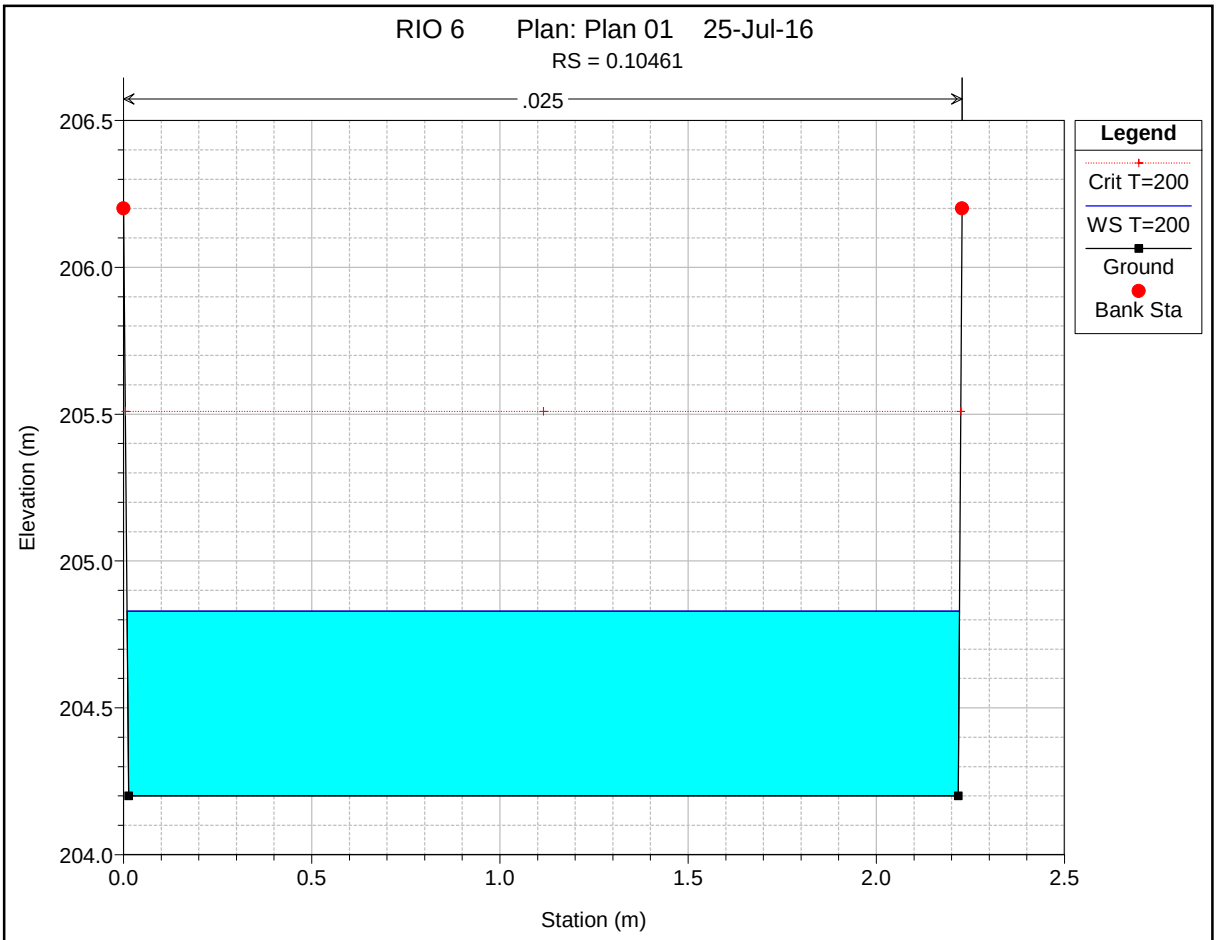

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11058
.025
207.5
207.0
206.5
206.0
205.5
205.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

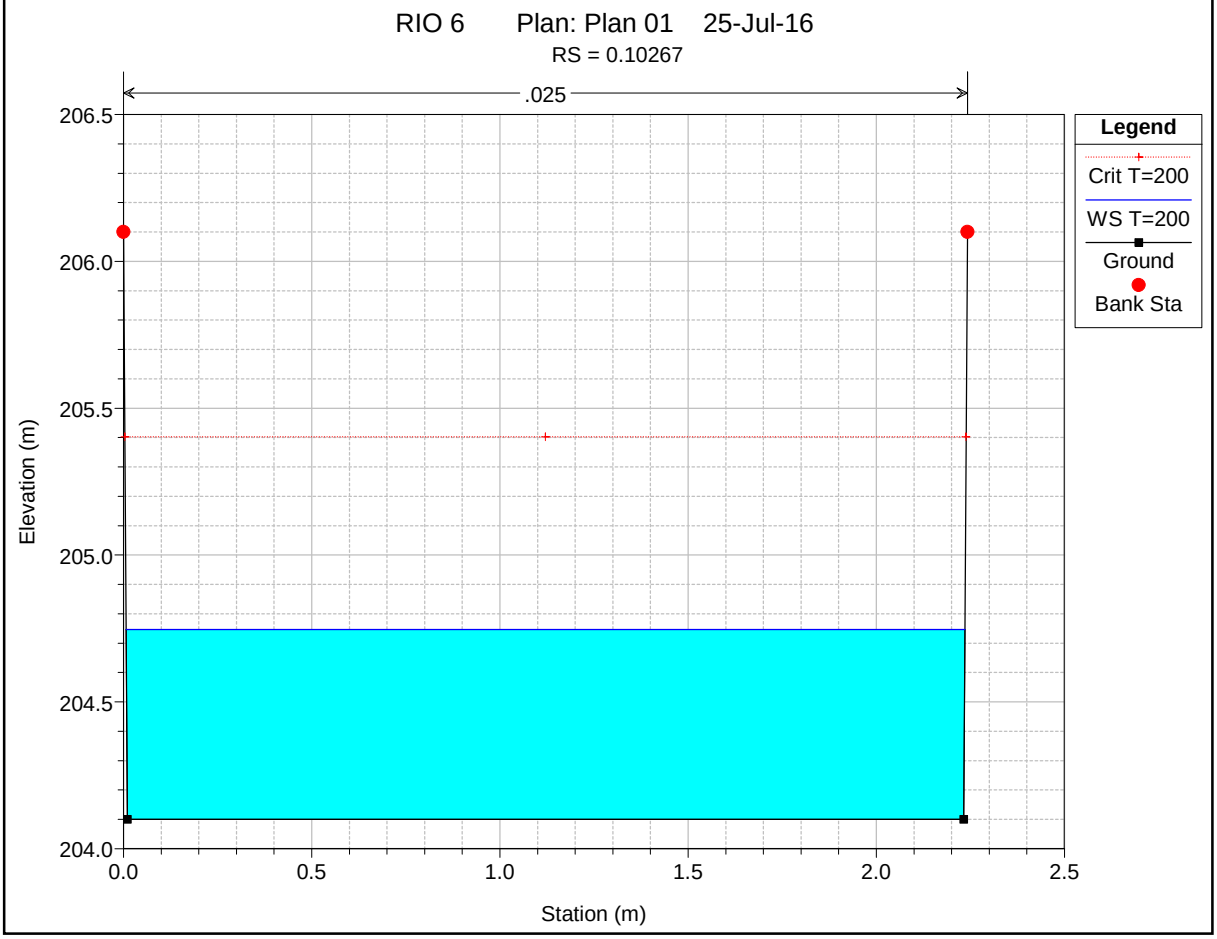

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11053
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
207.0
206.5
206.0
205.5
205.0
204.5
0.0
0.5
1.0
1.5
2.0
2.5

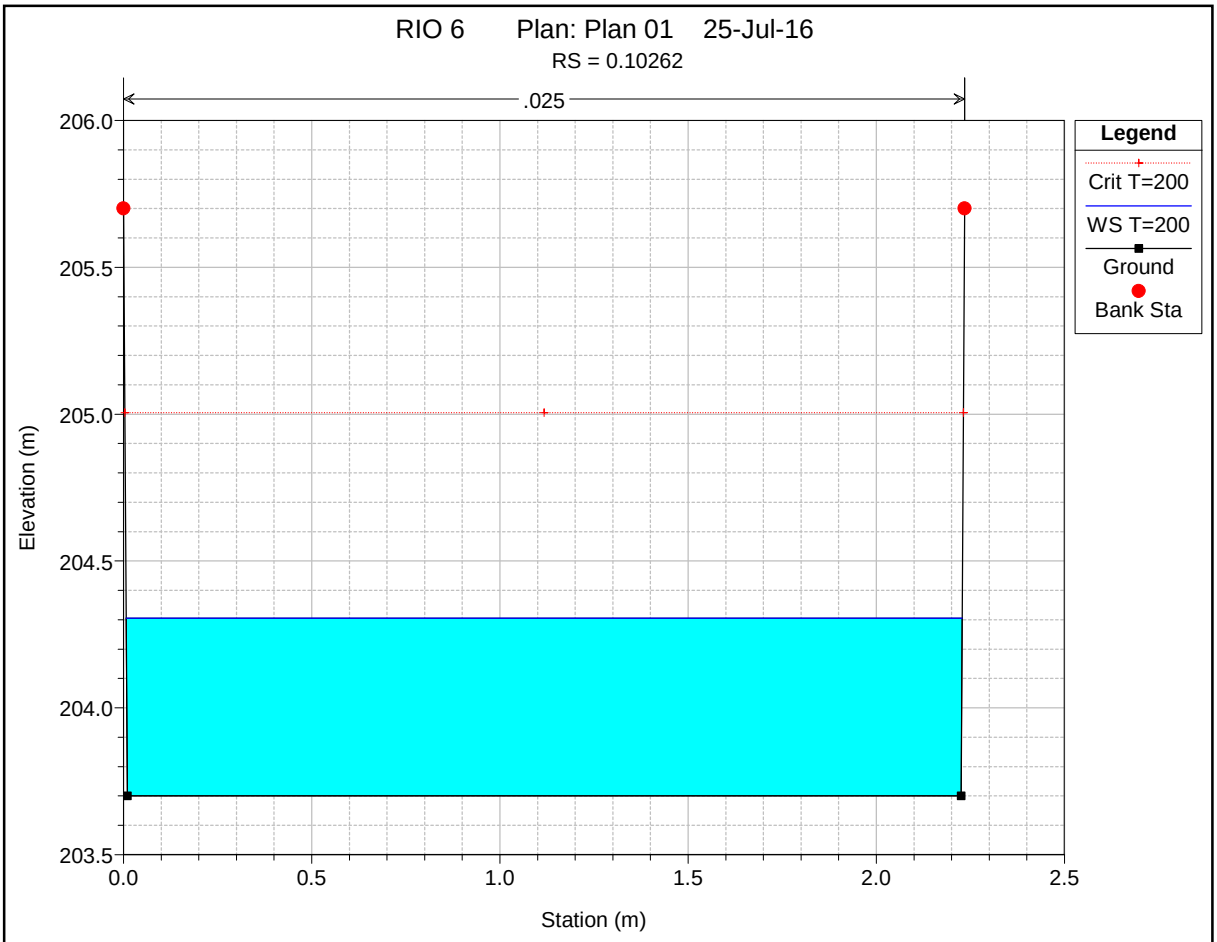

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10886
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
207.0
206.5
206.0
205.5
205.0
204.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0

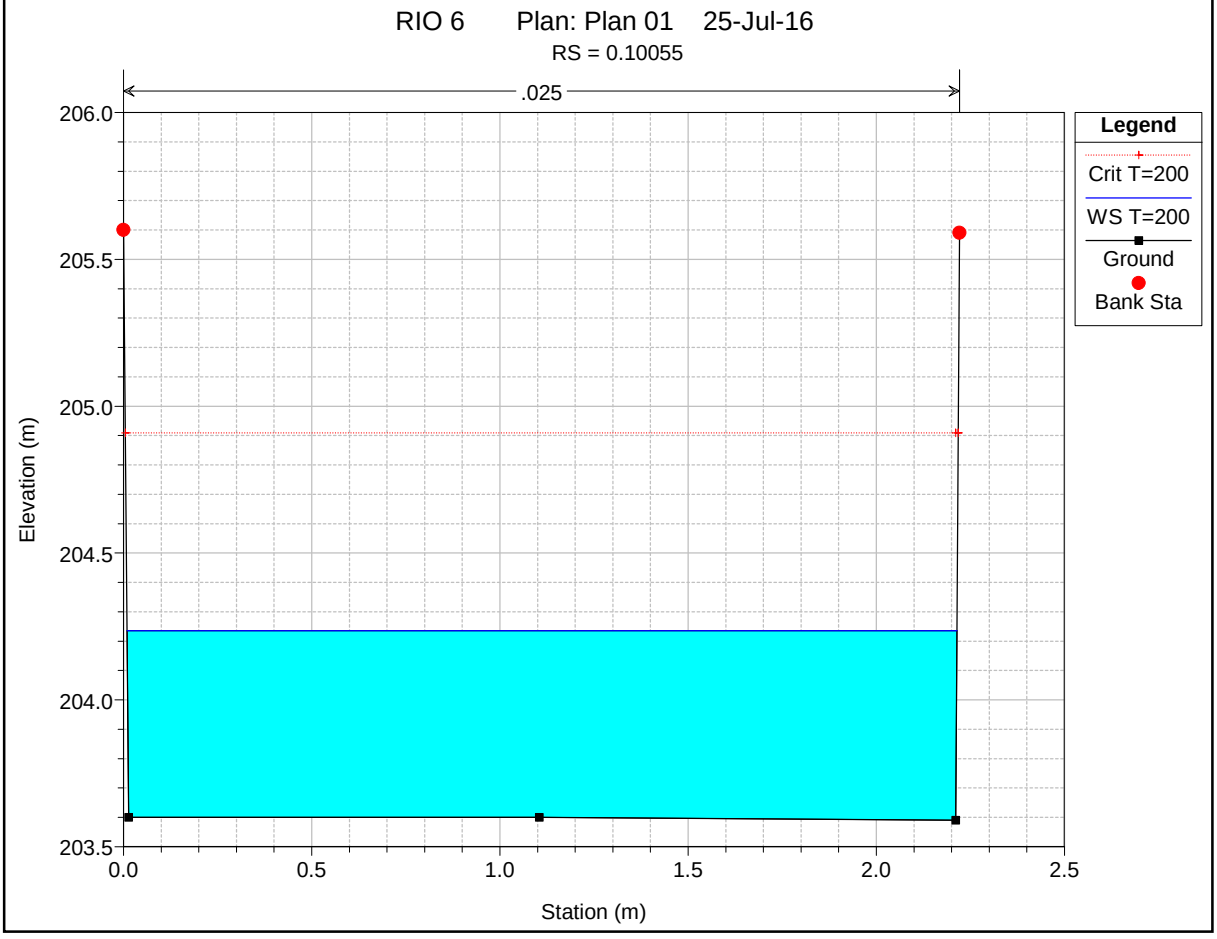

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10657
.025
207.0
206.5
206.0
205.5
205.0
204.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

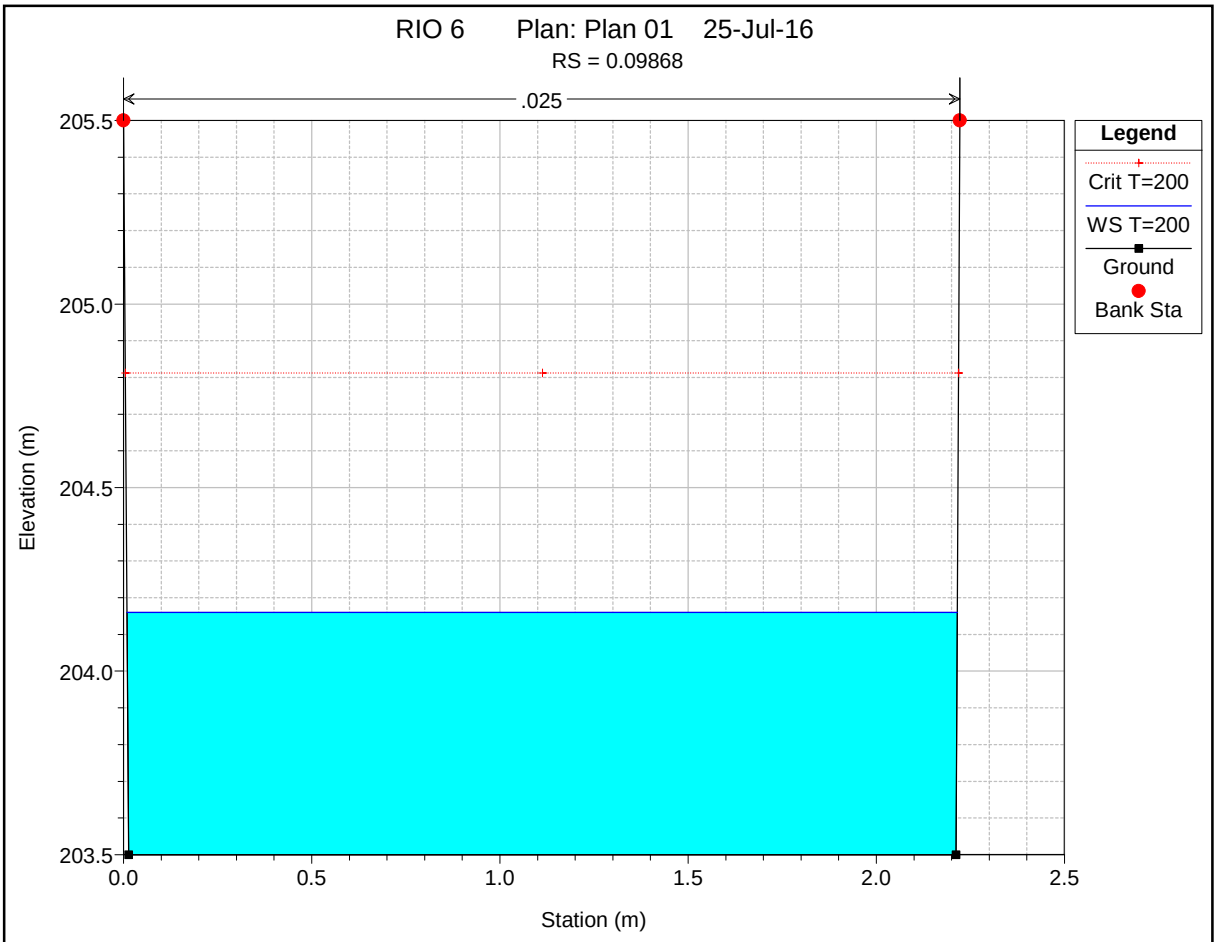

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10650
.025
206.5
206.0
205.5
205.0
204.5
204.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

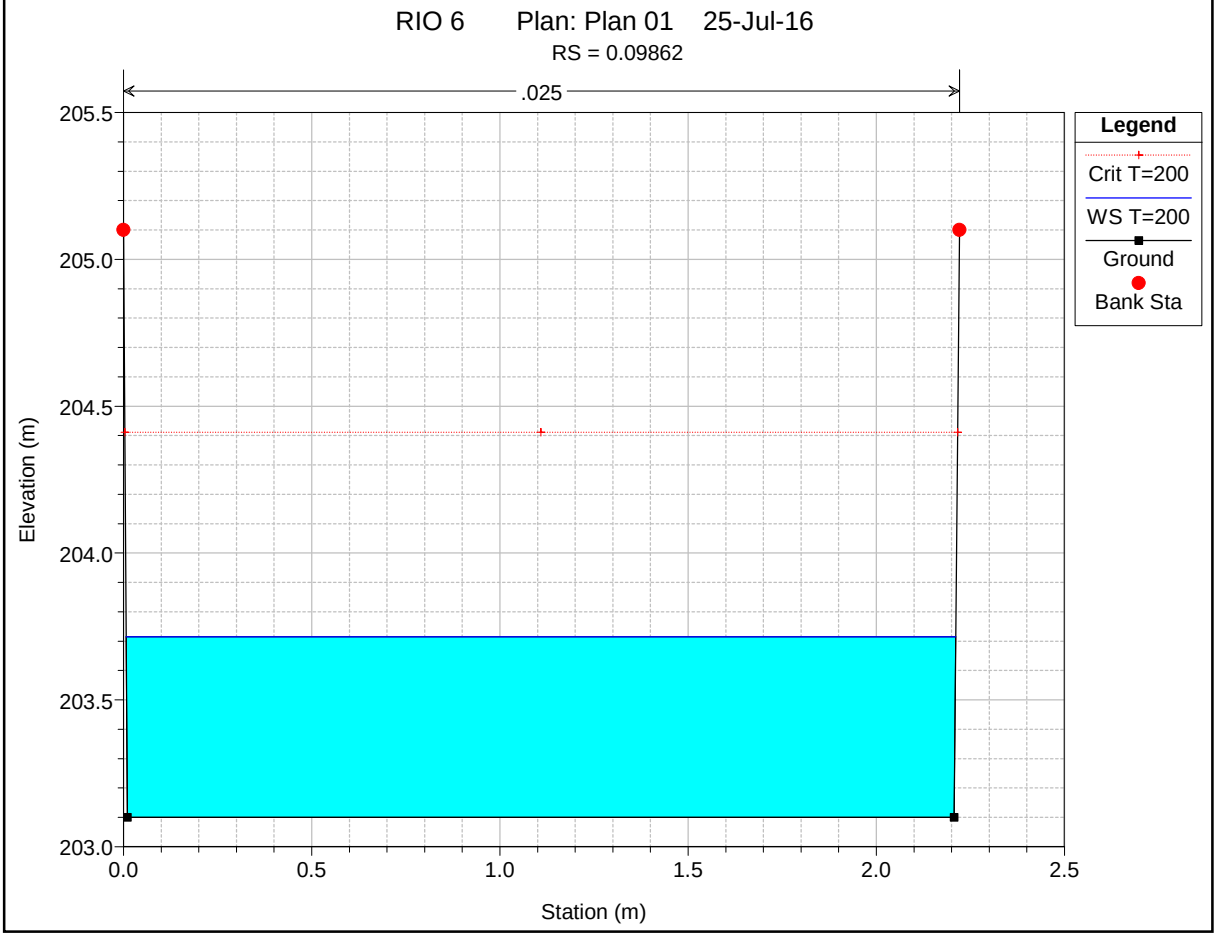

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10461
.025
206.5
206.0
205.5
205.0
204.5
204.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

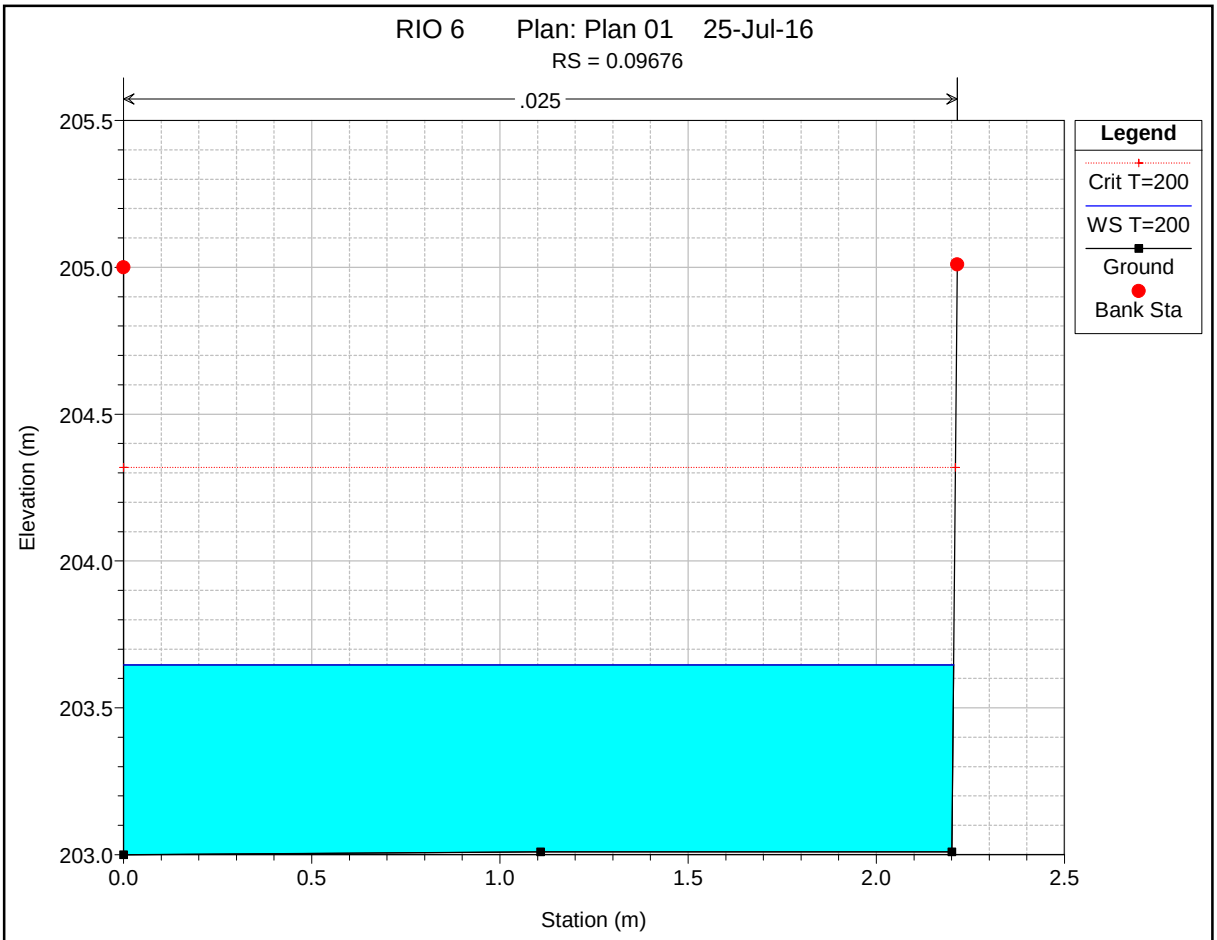

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10267
.025
206.5
206.0
205.5
205.0
204.5
204.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

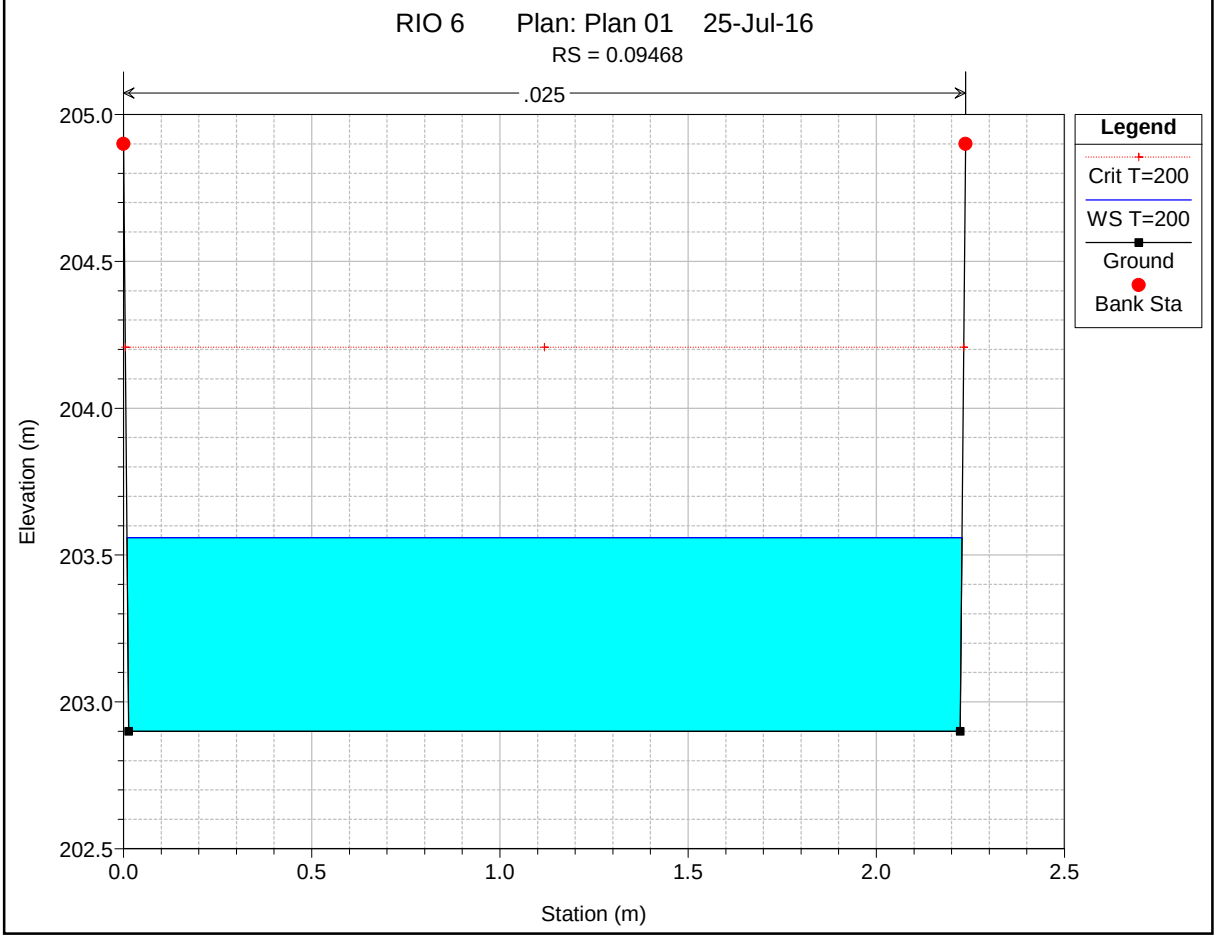

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10262
.025
206.0
205.5
205.0
204.5
204.0
203.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

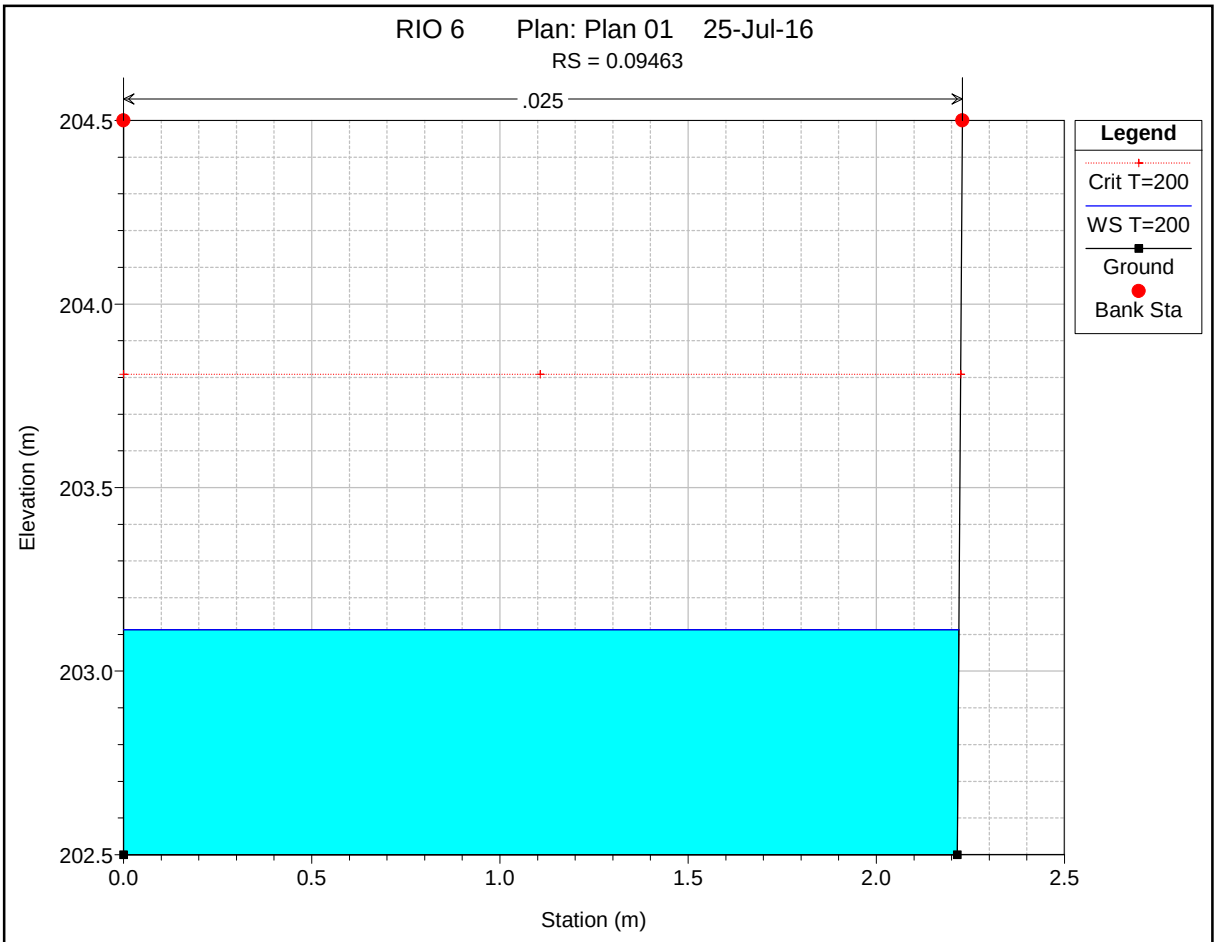

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10055
.025
206.0
205.5
205.0
204.5
204.0
203.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

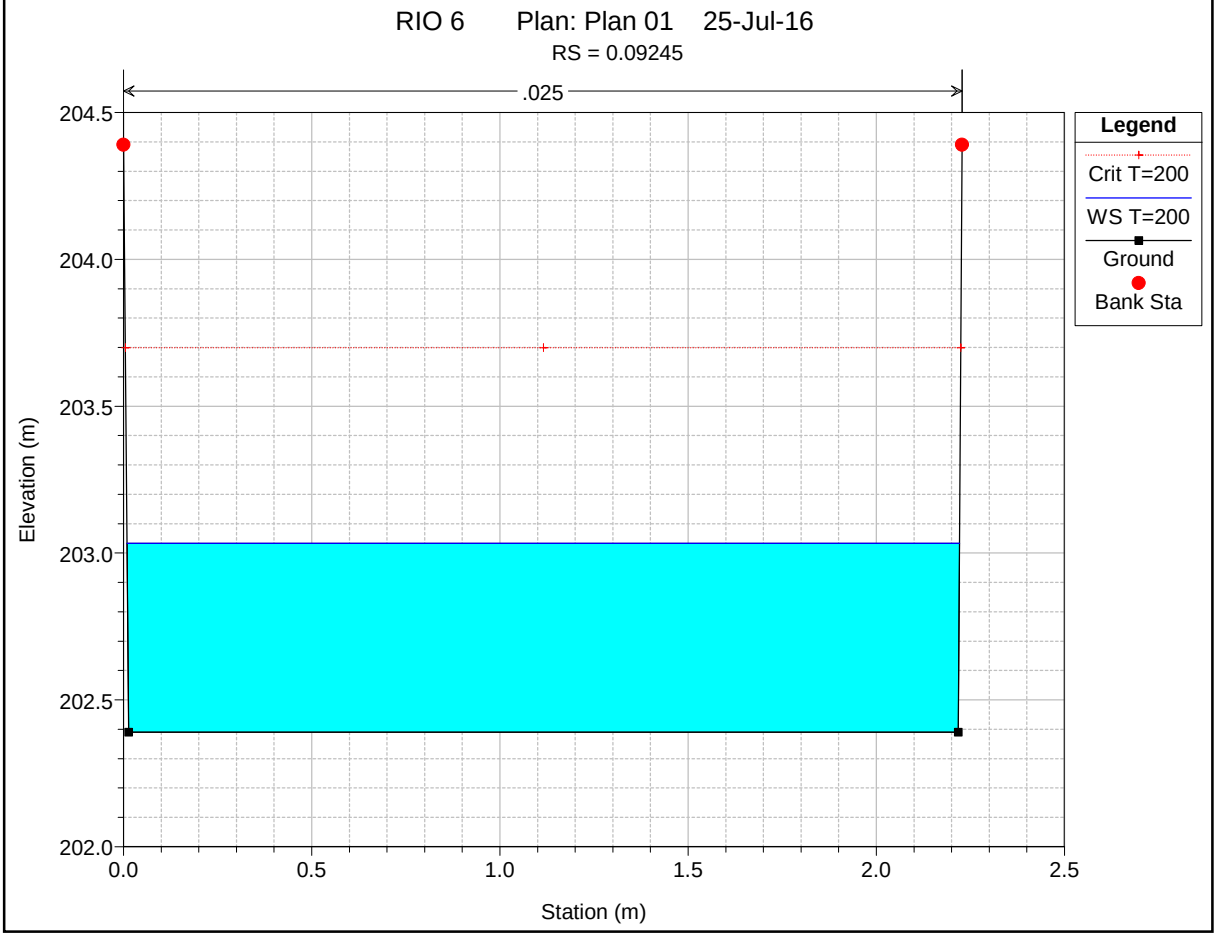

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09868
.025
205.5
205.0
204.5
204.0
203.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

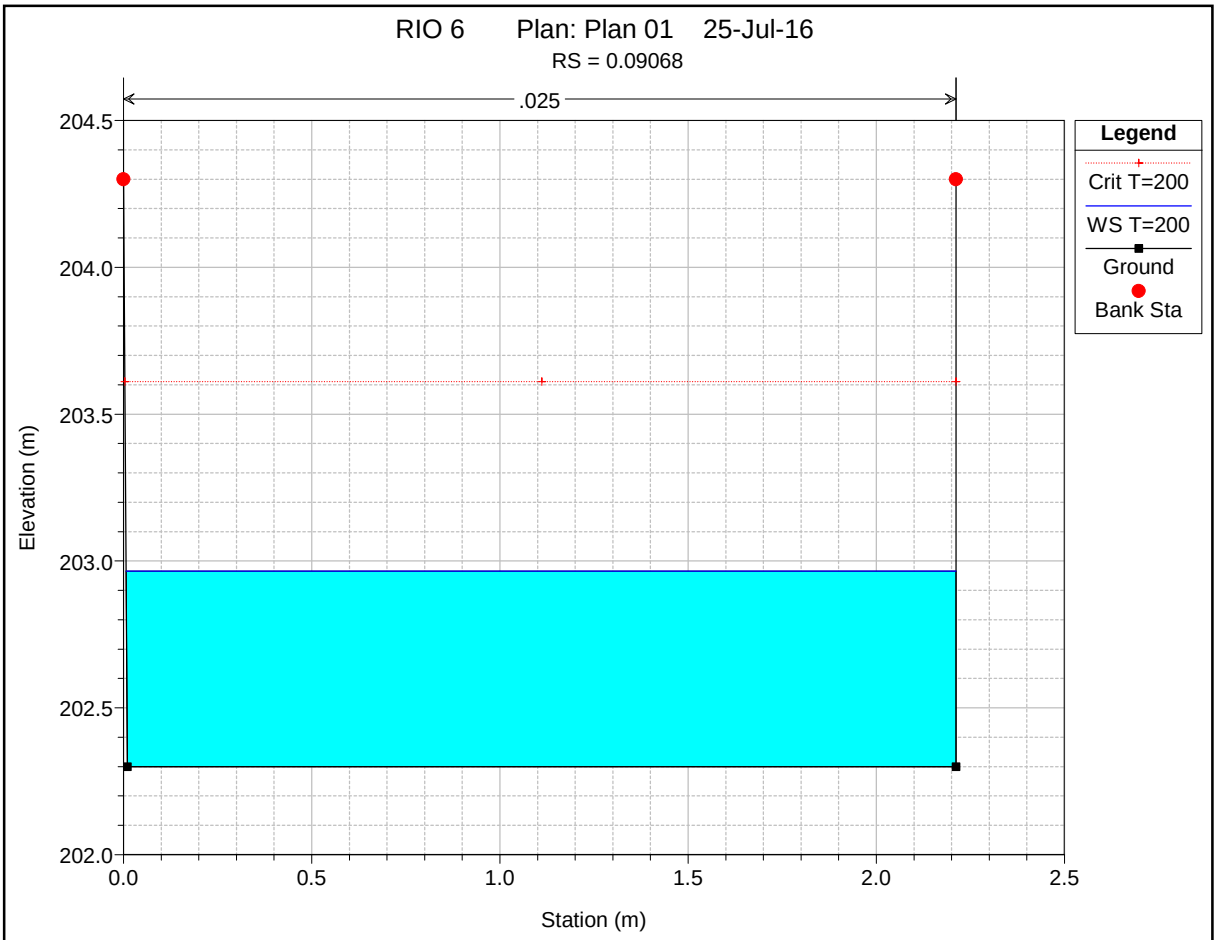

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09862
.025
205.5
205.0
204.5
204.0
203.5
203.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

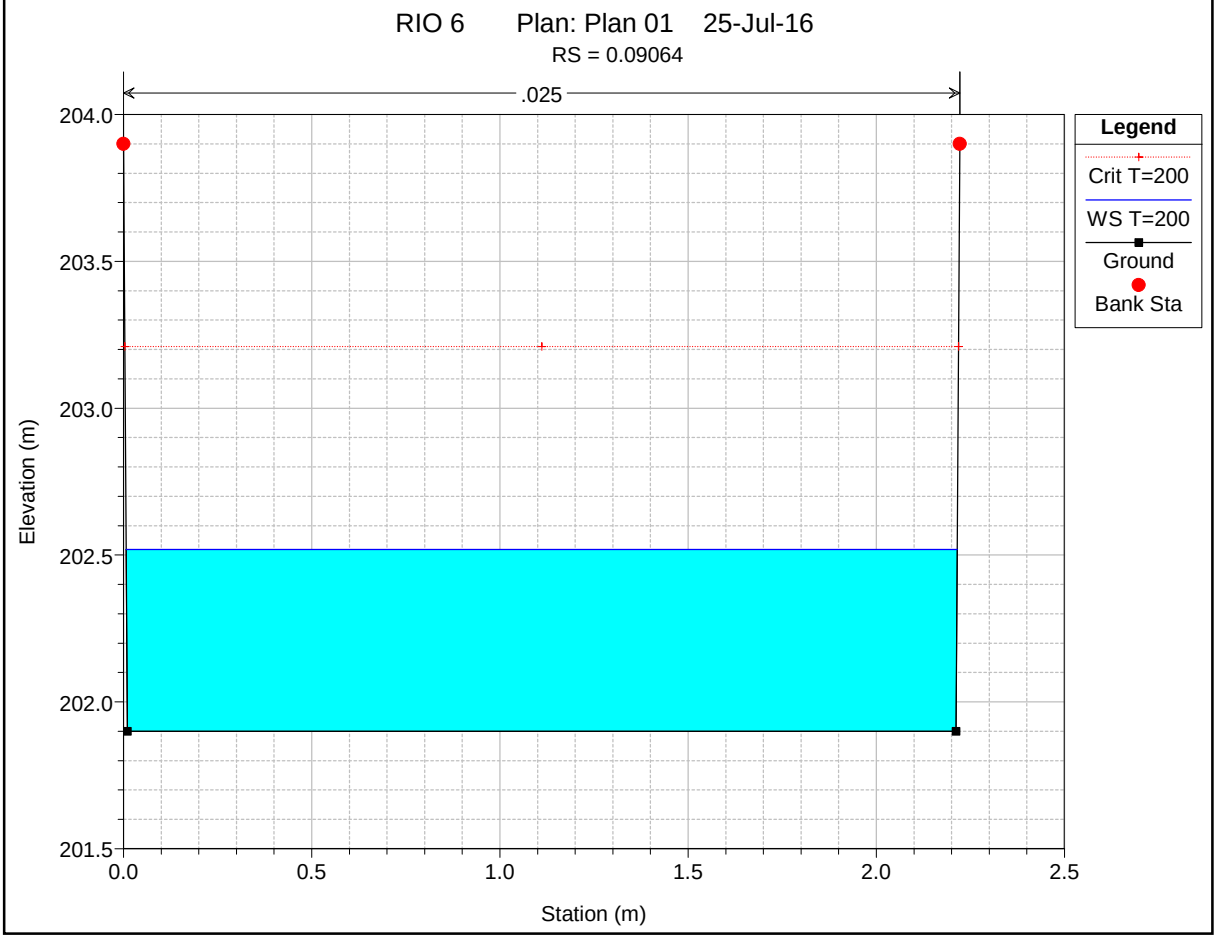

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09676
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
205.5
205.0
204.5
204.0
203.5
203.0
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

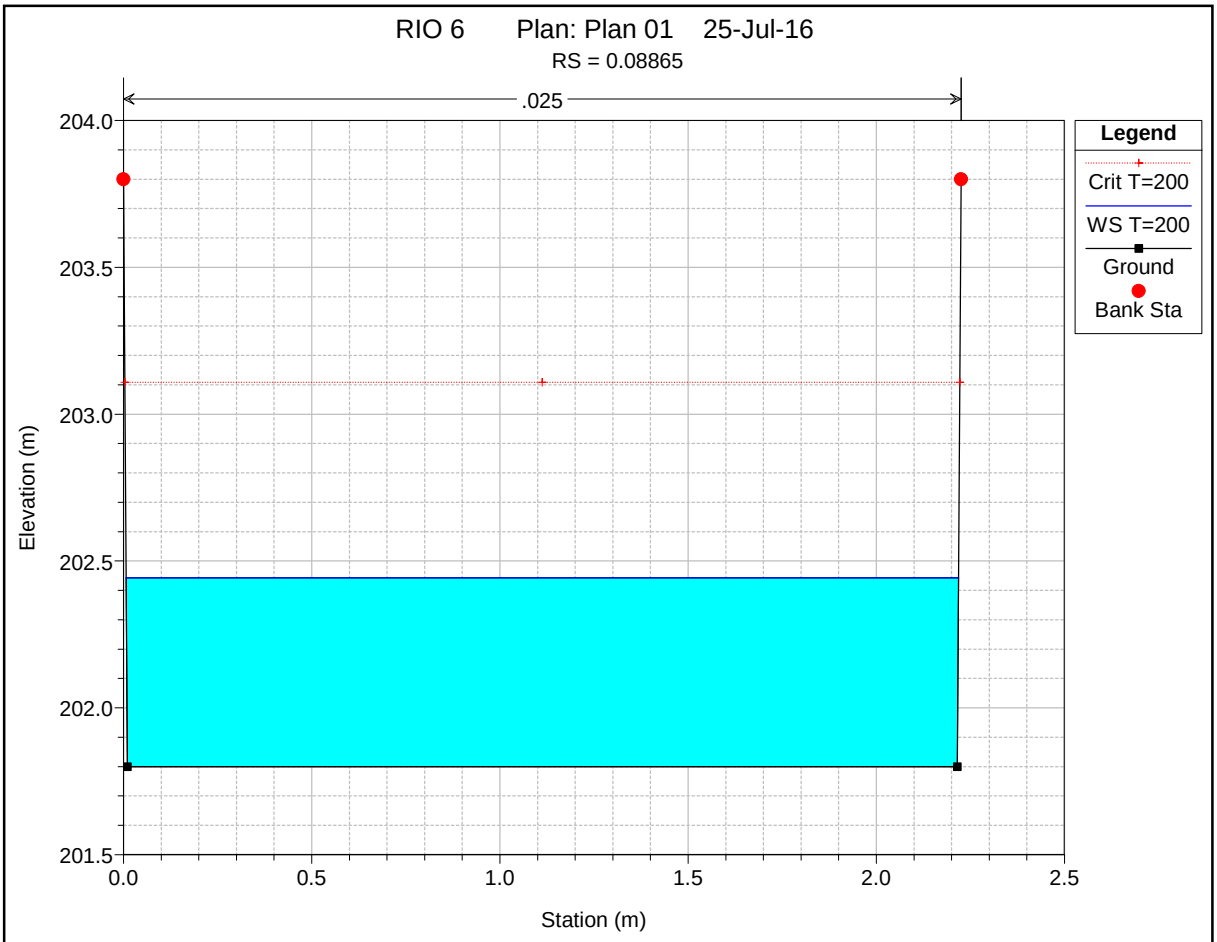

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09468
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
205.0
204.5
204.0
203.5
203.0
202.5
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

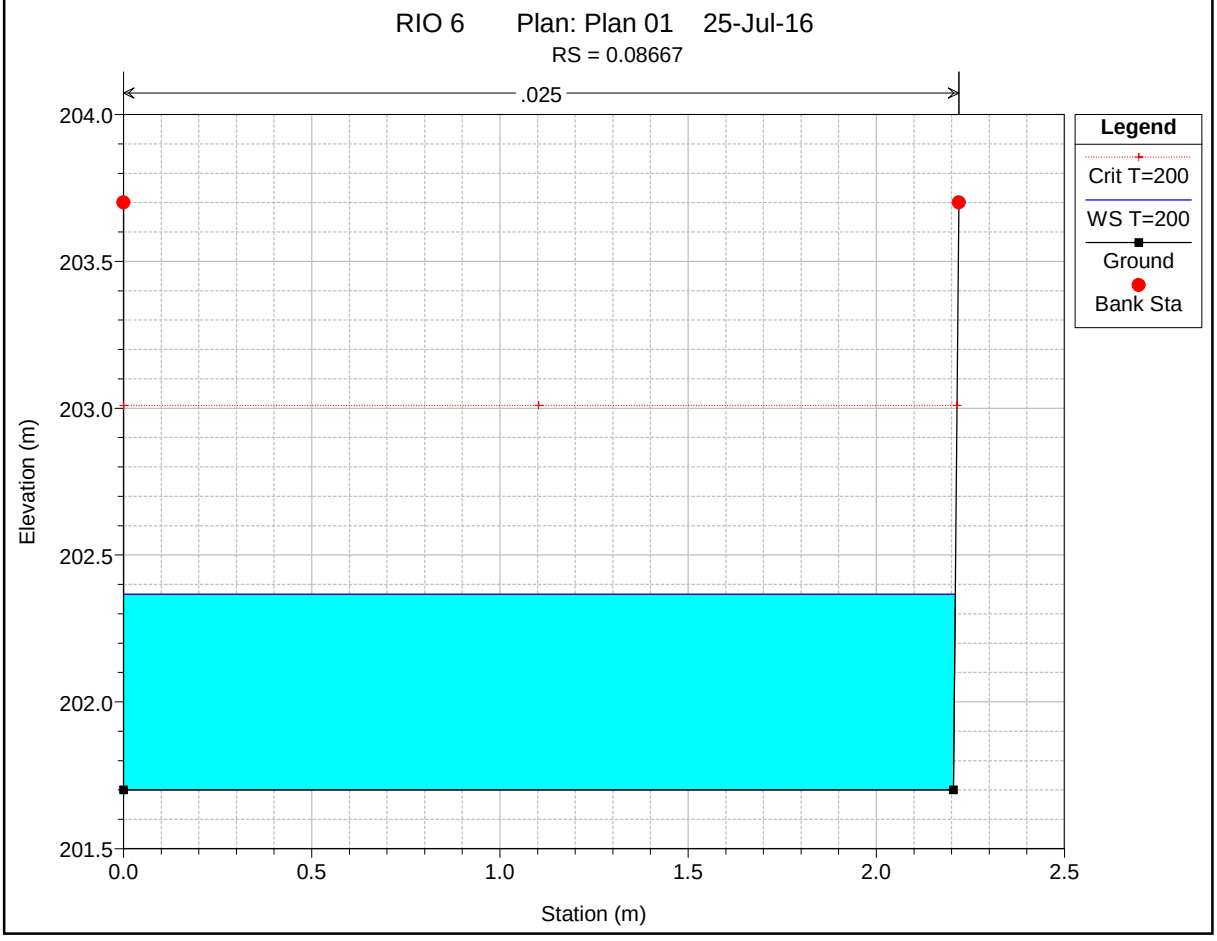

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09463
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
204.5
204.0
203.5
203.0
202.5
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

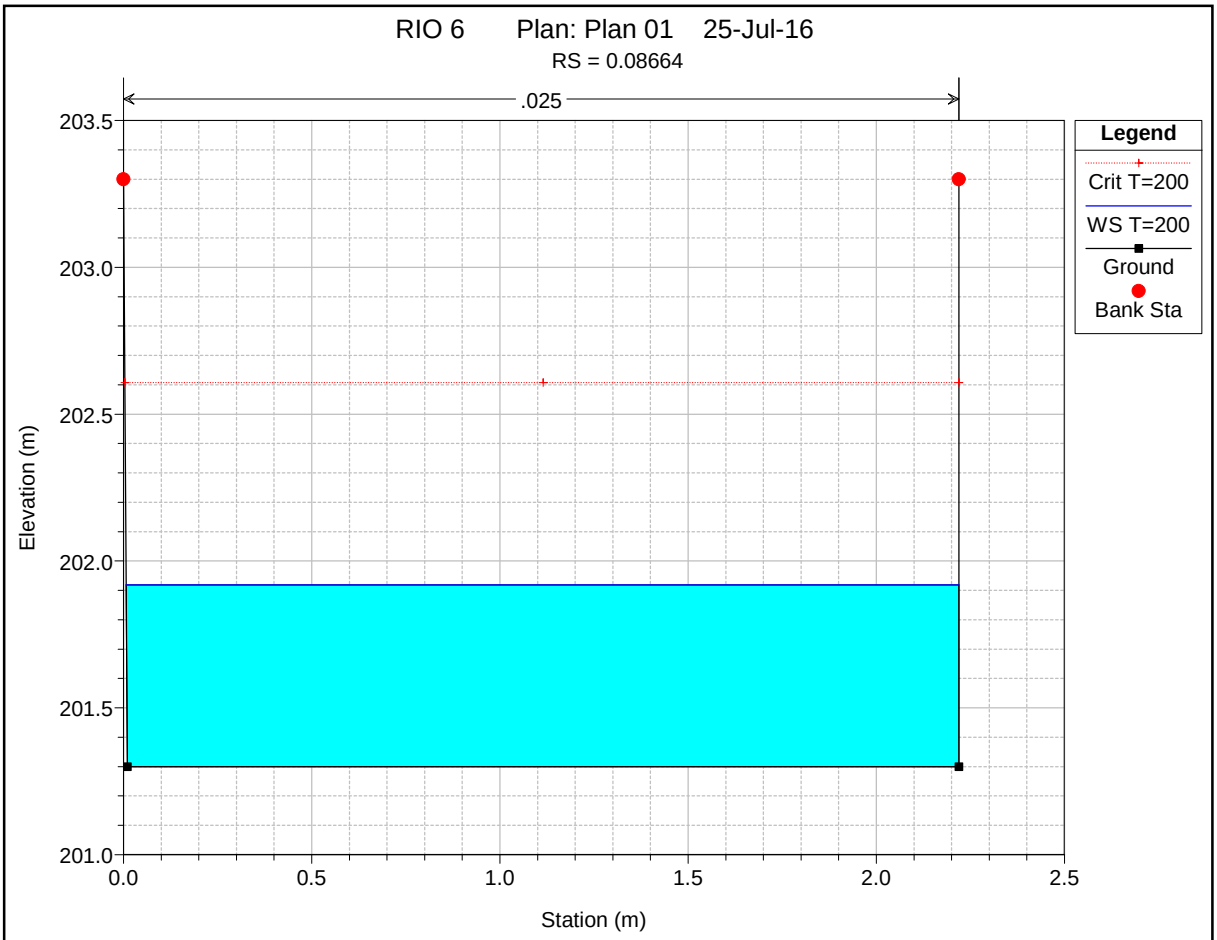

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09245
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
204.5
204.0
203.5
203.0
202.5
202.0
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

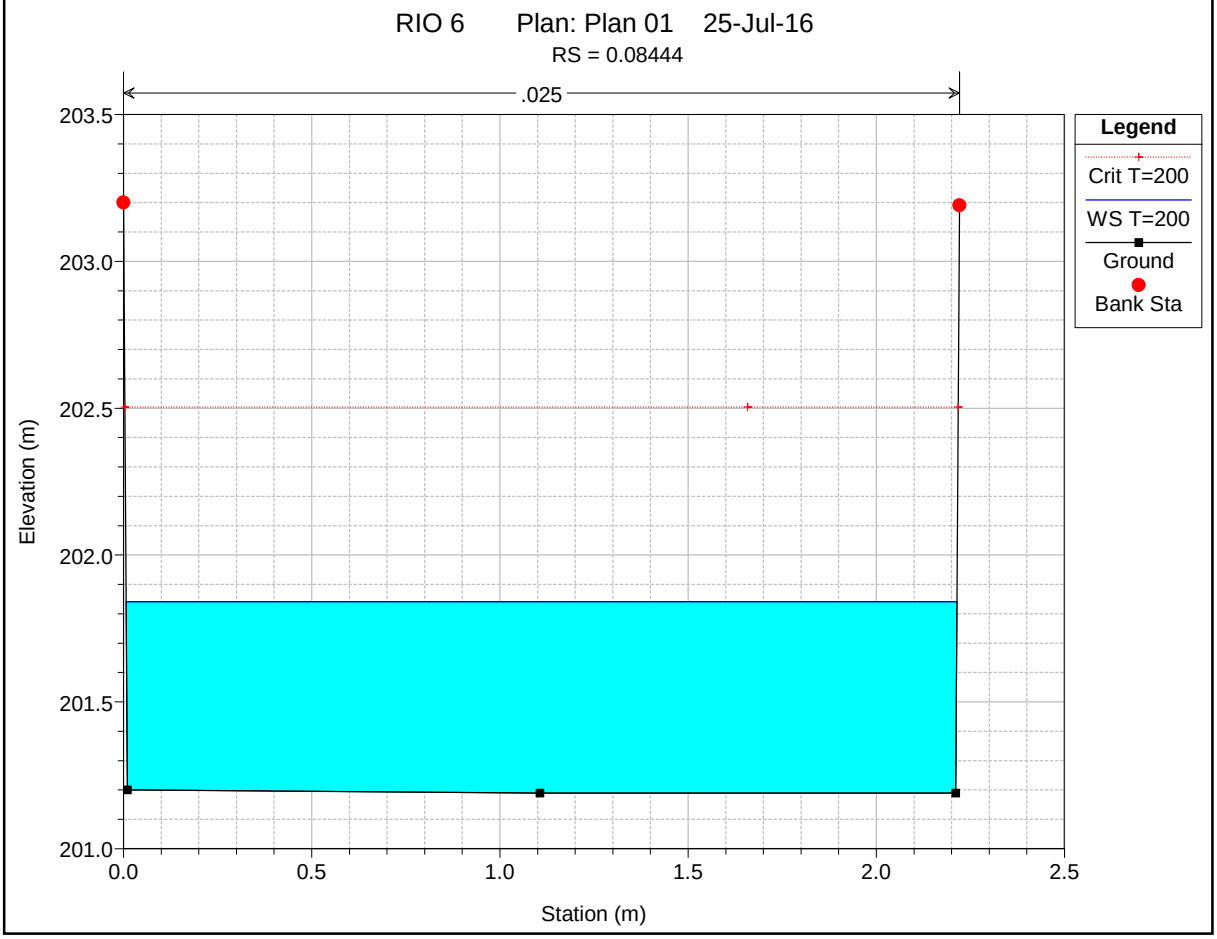

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09068
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.5
204.0
203.5
203.0
202.5
202.0
0.0
0.5
1.0
1.5
2.0
2.5

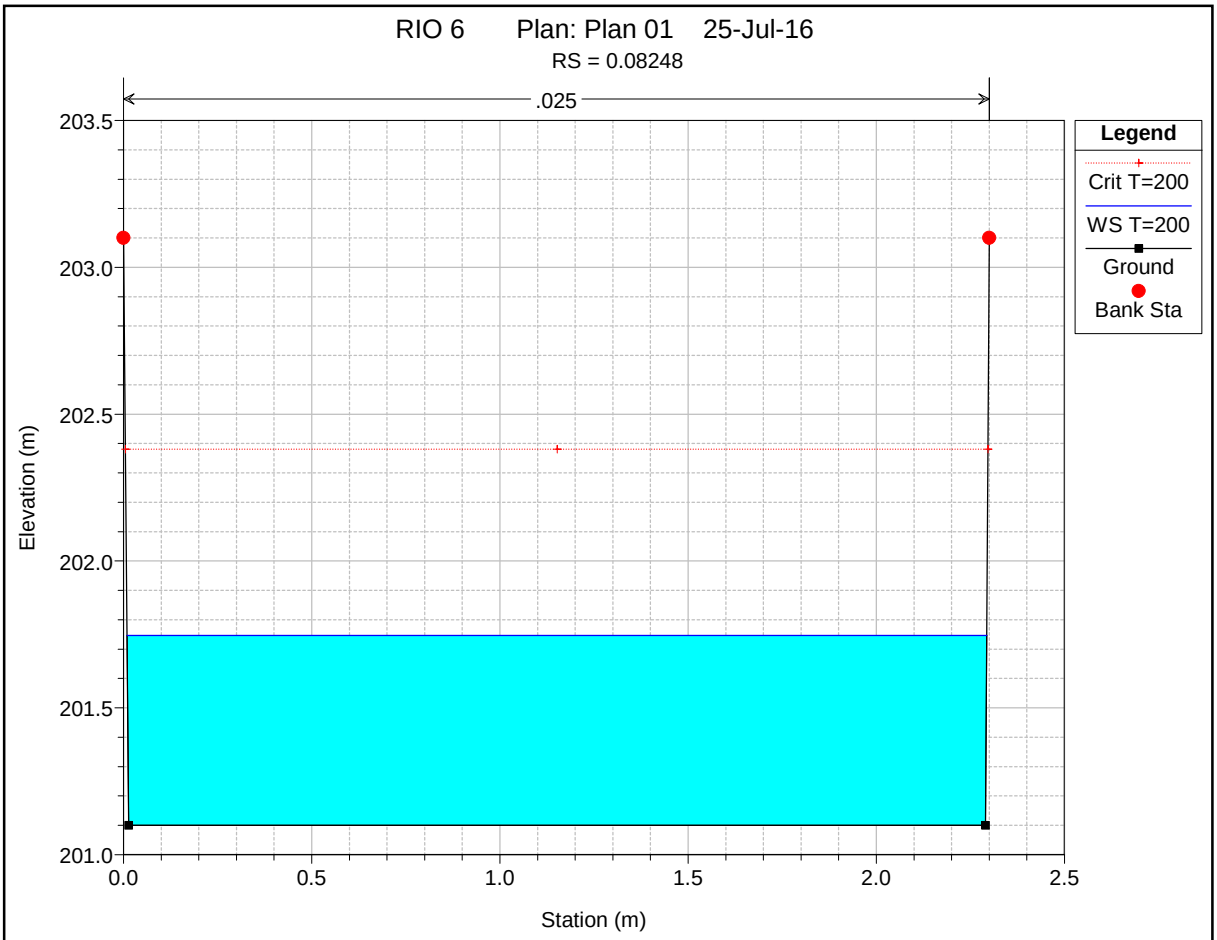

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09064
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.0
203.5
203.0
202.5
202.0
201.5
0.0
0.5
1.0
1.5
2.0
2.5

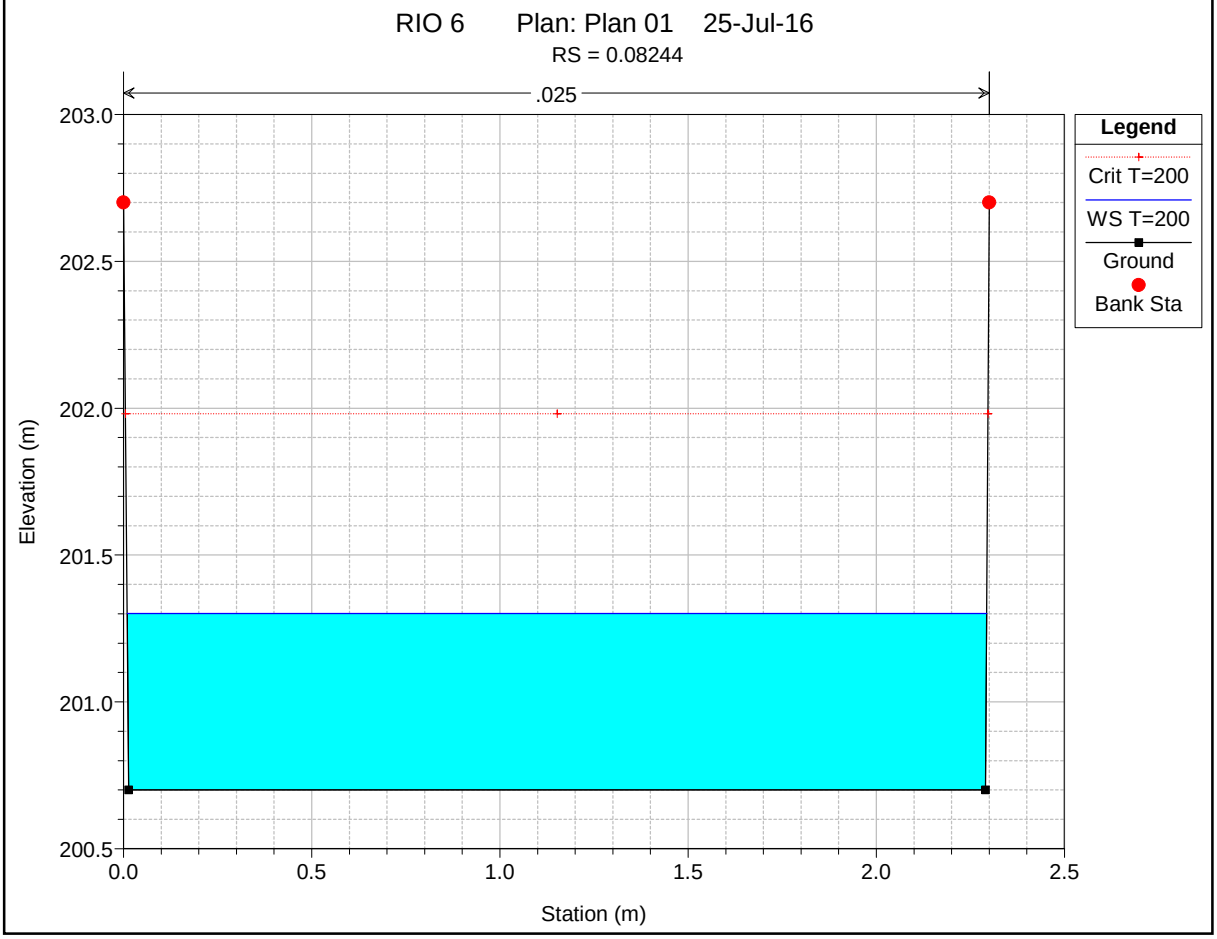

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08865
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.0
203.5
203.0
202.5
202.0
201.5
0.0
0.5
1.0
1.5
2.0
2.5

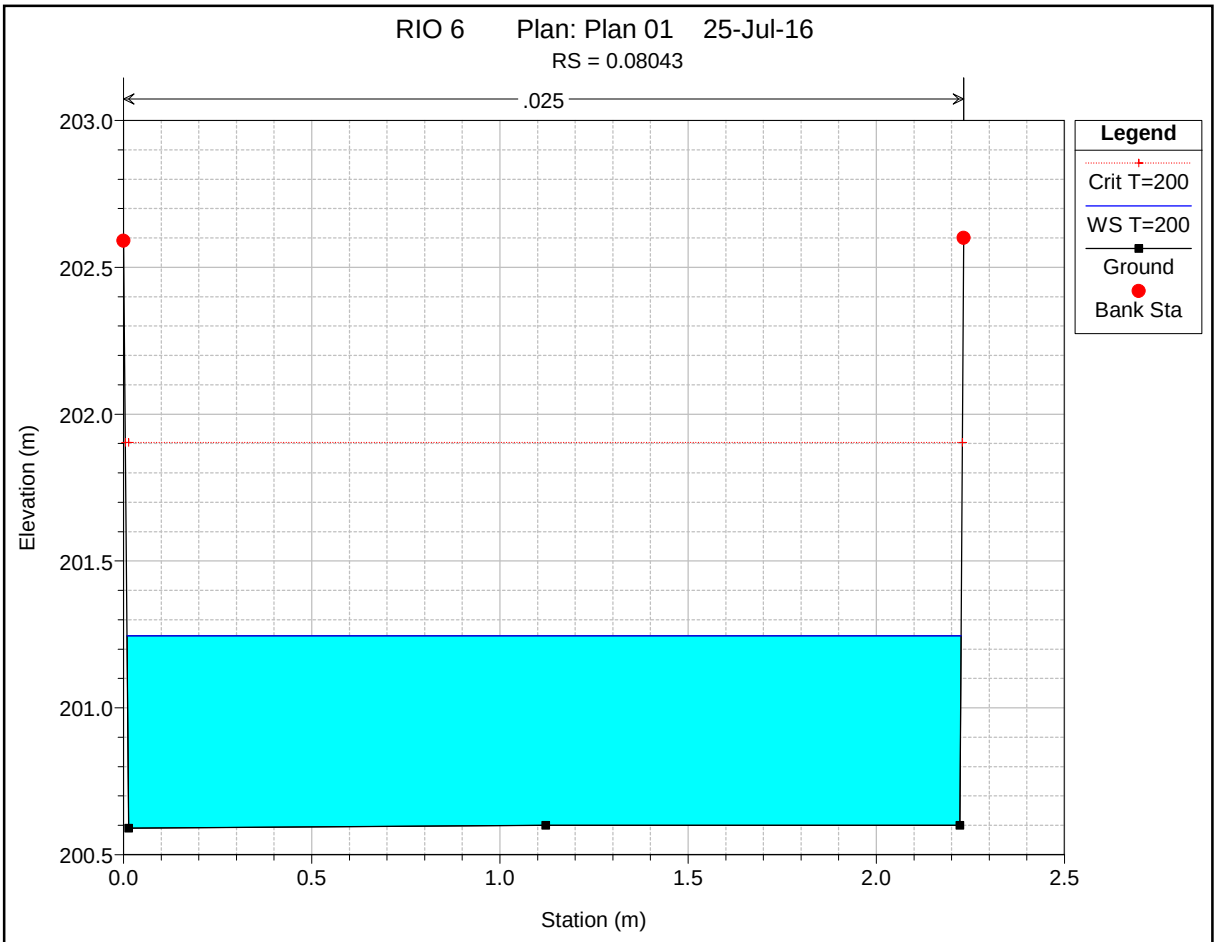

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08667
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.0
203.5
203.0
202.5
202.0
201.5
0.0
0.5
1.0
1.5
2.0
2.5

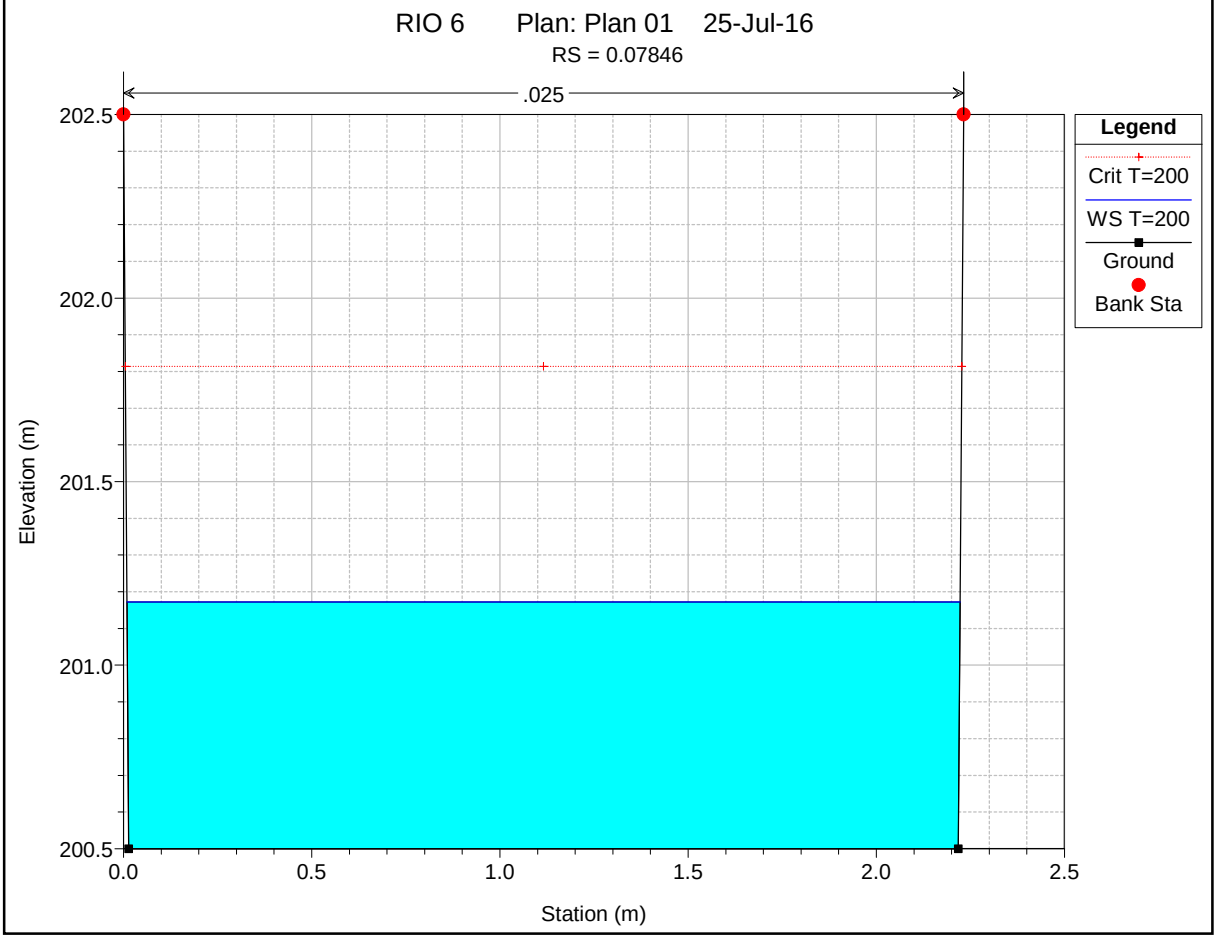

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08664
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.5
203.0
202.5
202.0
201.5
201.0
0.0
0.5
1.0
1.5
2.0
2.5

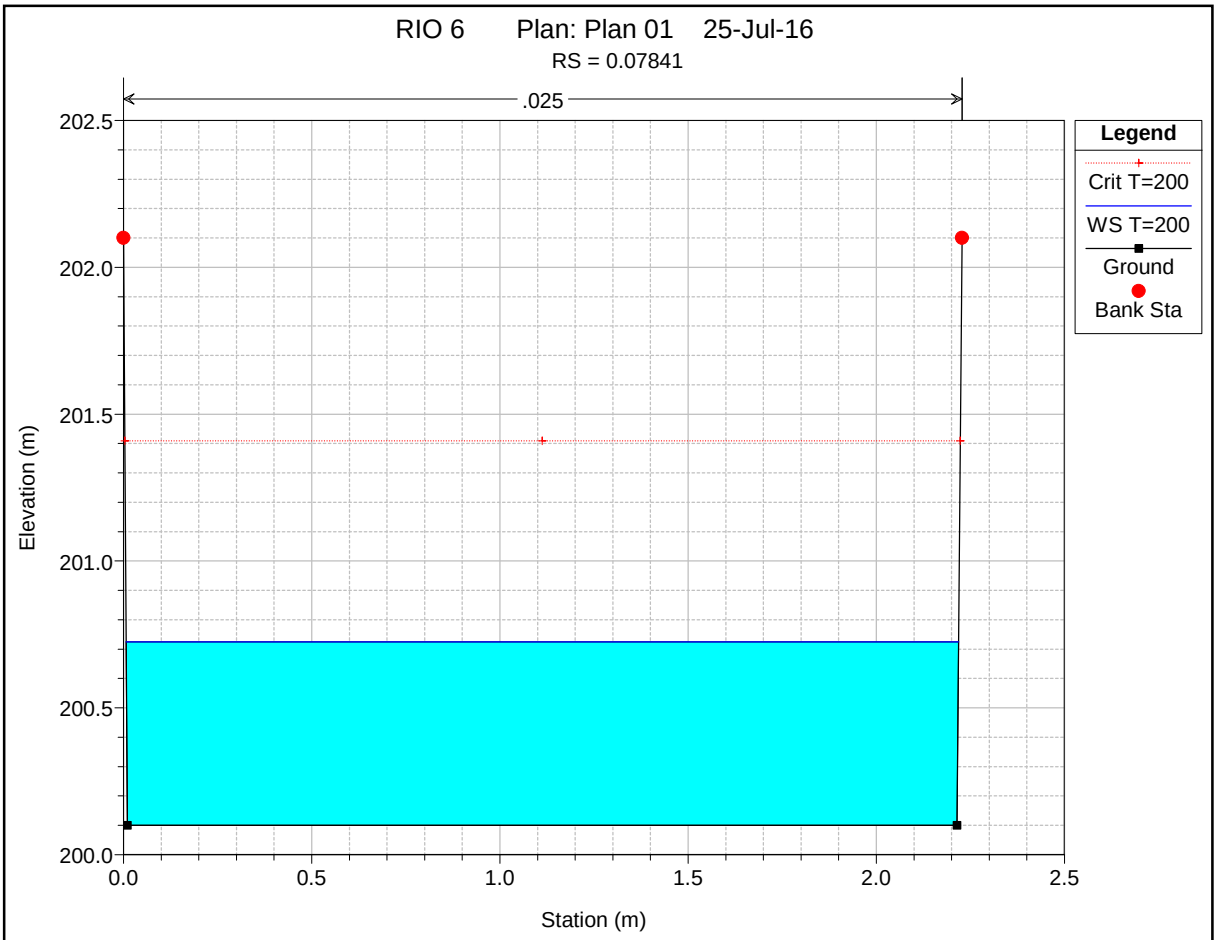

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08444
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.5
203.0
202.5
202.0
201.5
201.0
0.0
0.5
1.0
1.5
2.0
2.5

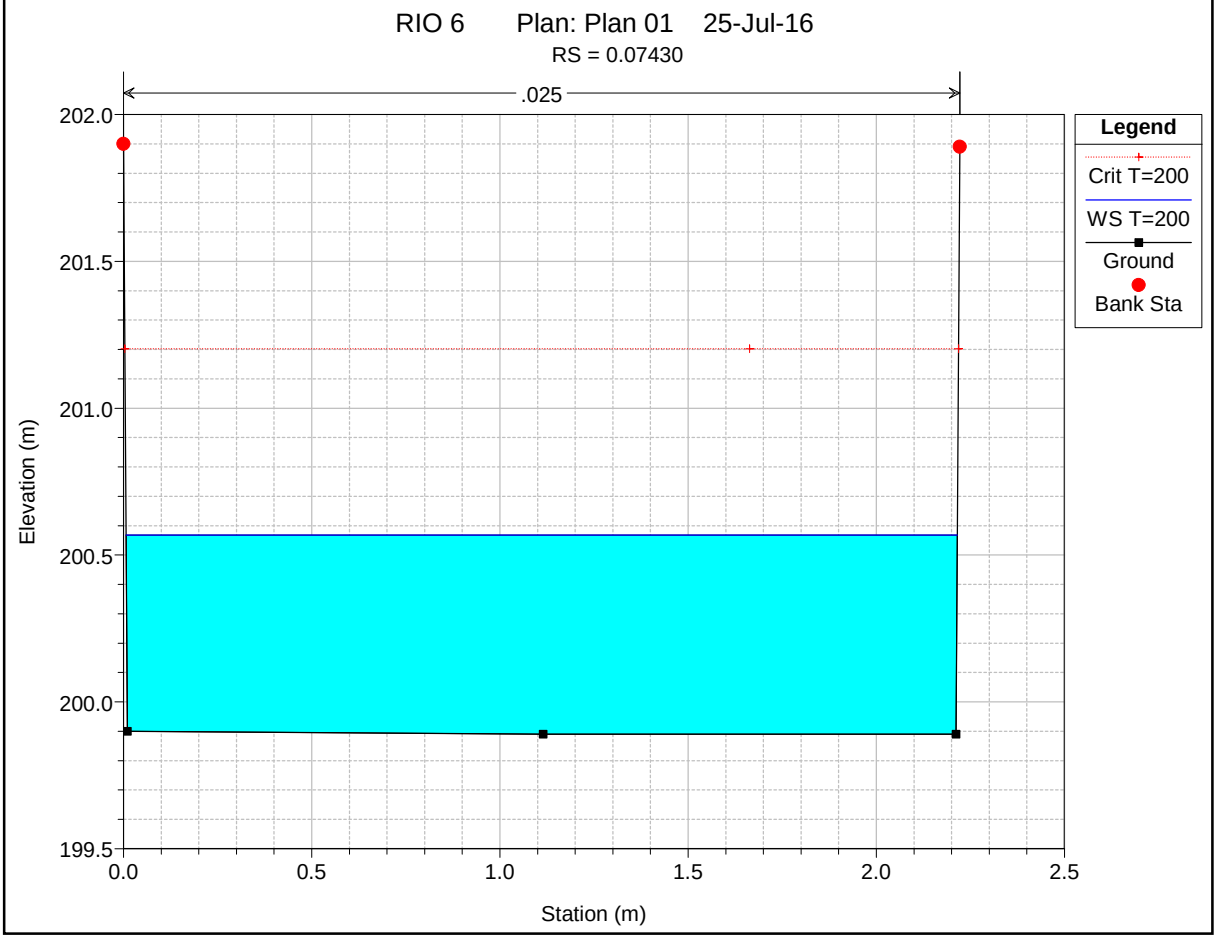

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08248
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.5
203.0
202.5
202.0
201.5
201.0
0.0
0.5
1.0
1.5
2.0
2.5

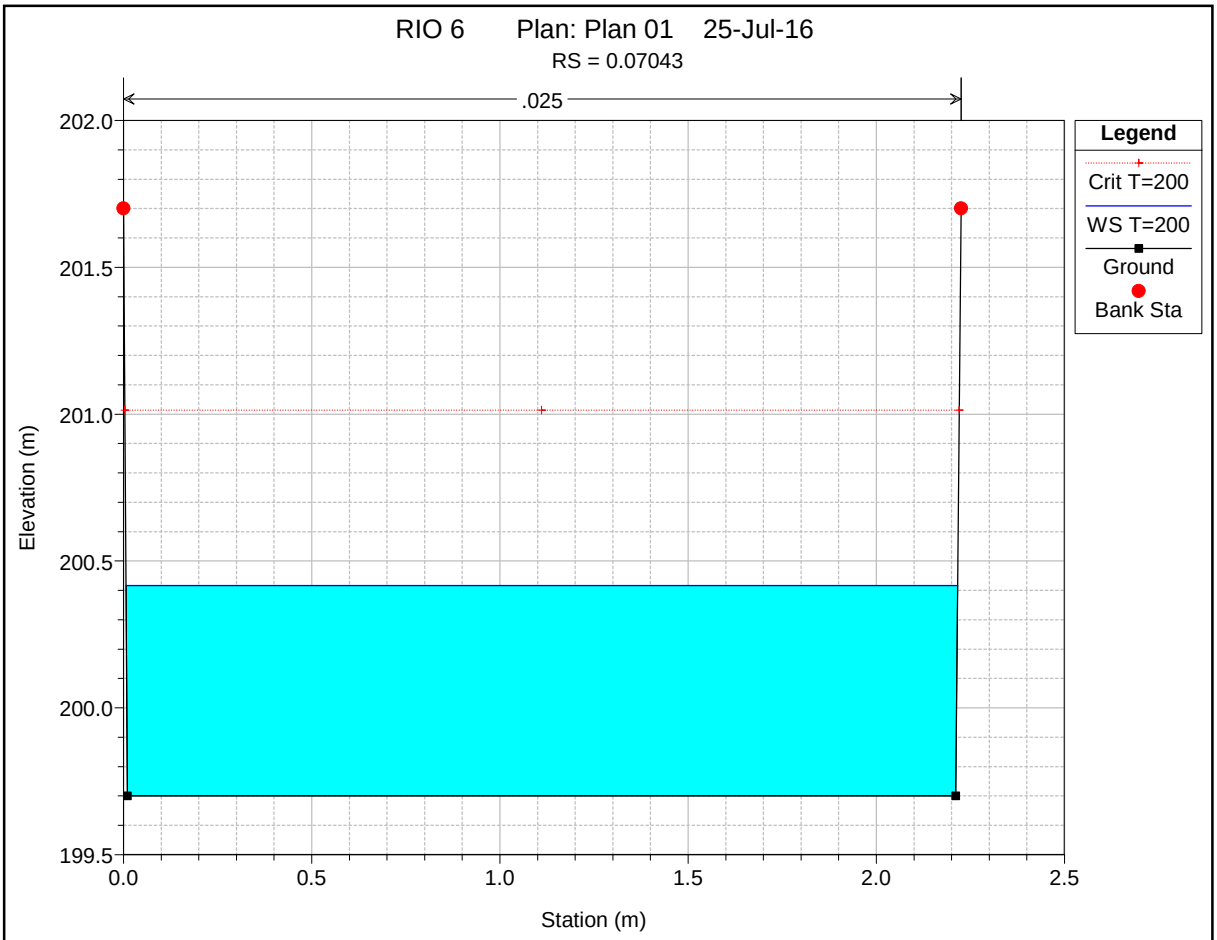

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08244
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.0
202.5
202.0
201.5
201.0
200.5
0.0
0.5
1.0
1.5
2.0
2.5

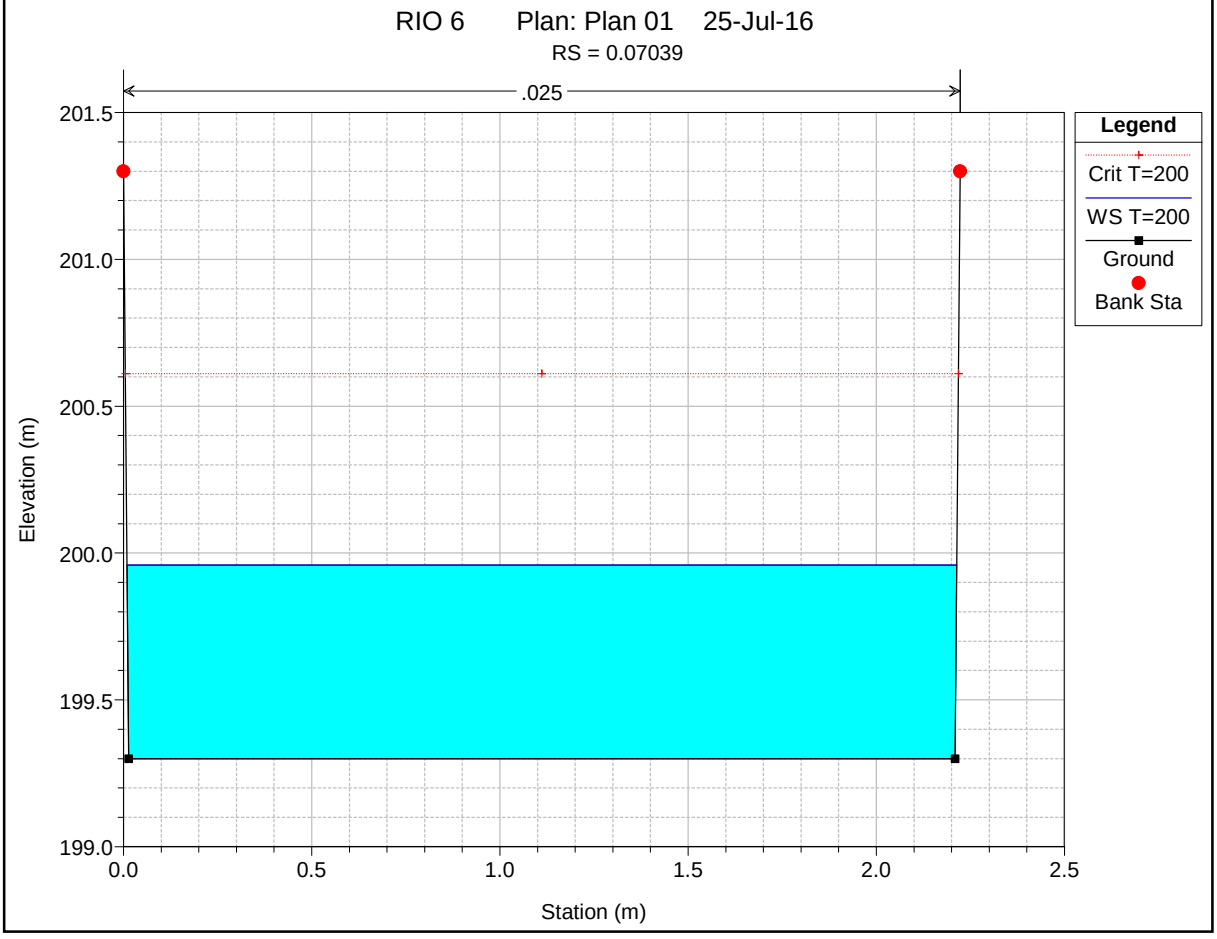

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08043
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.0
202.5
202.0
201.5
201.0
200.5
0.0
0.5
1.0
1.5
2.0
2.5

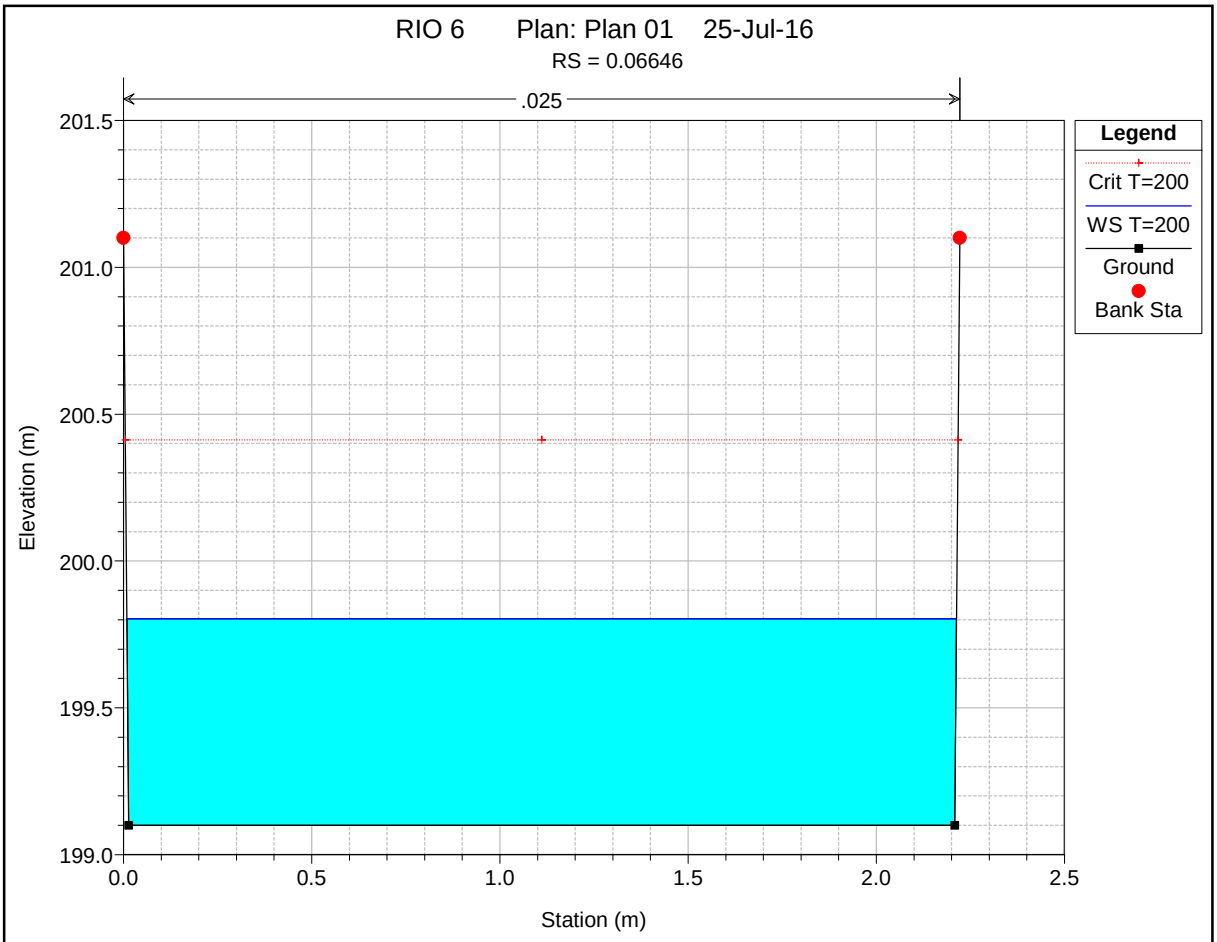

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07846
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202.5
202.0
201.5
201.0
200.5
0.0
0.5
1.0
1.5
2.0
2.5

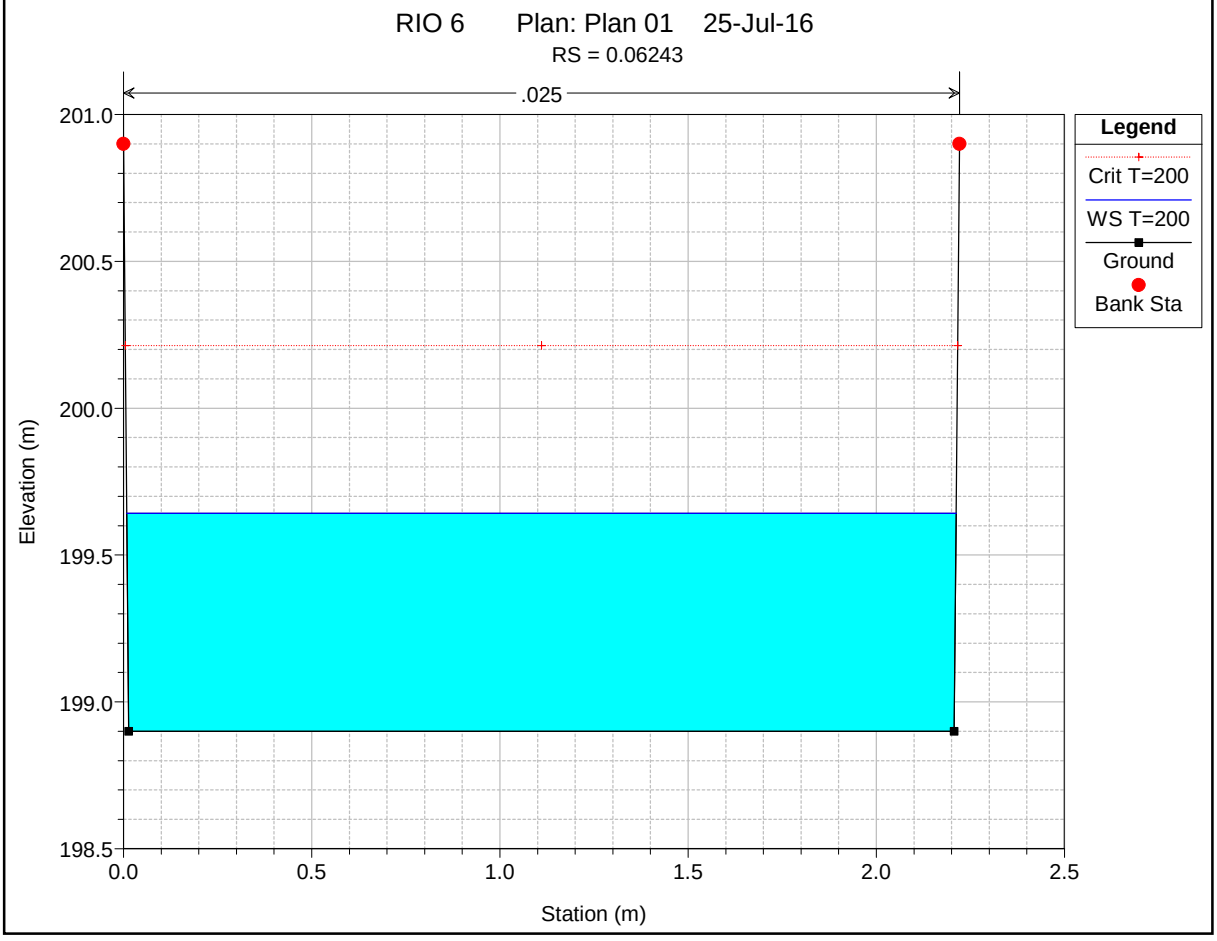

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07841
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202.5
202.0
201.5
201.0
200.5
200.0
0.0
0.5
1.0
1.5
2.0
2.5

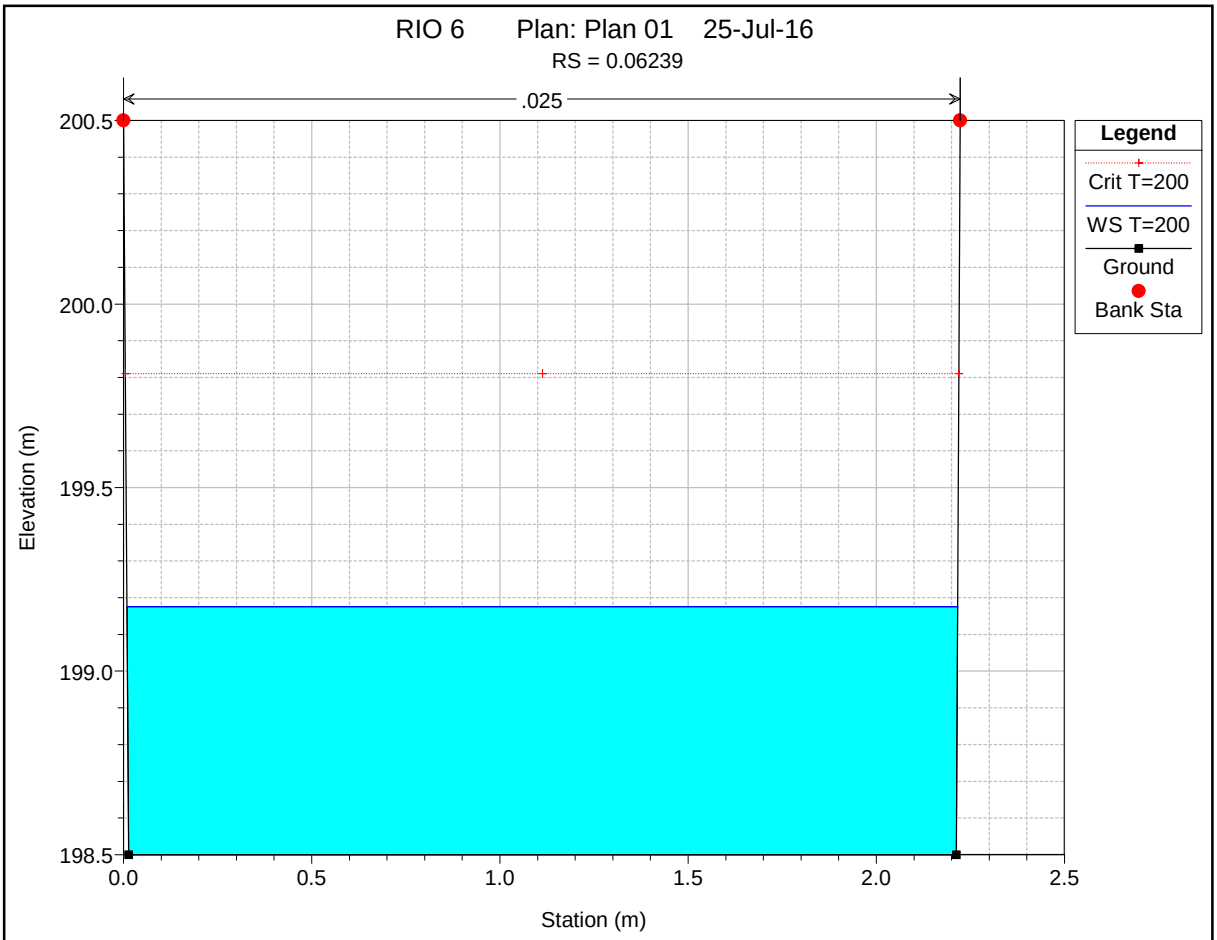

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07430
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202.0
201.5
201.0
200.5
200.0
199.5
0.0
0.5
1.0
1.5
2.0
2.5

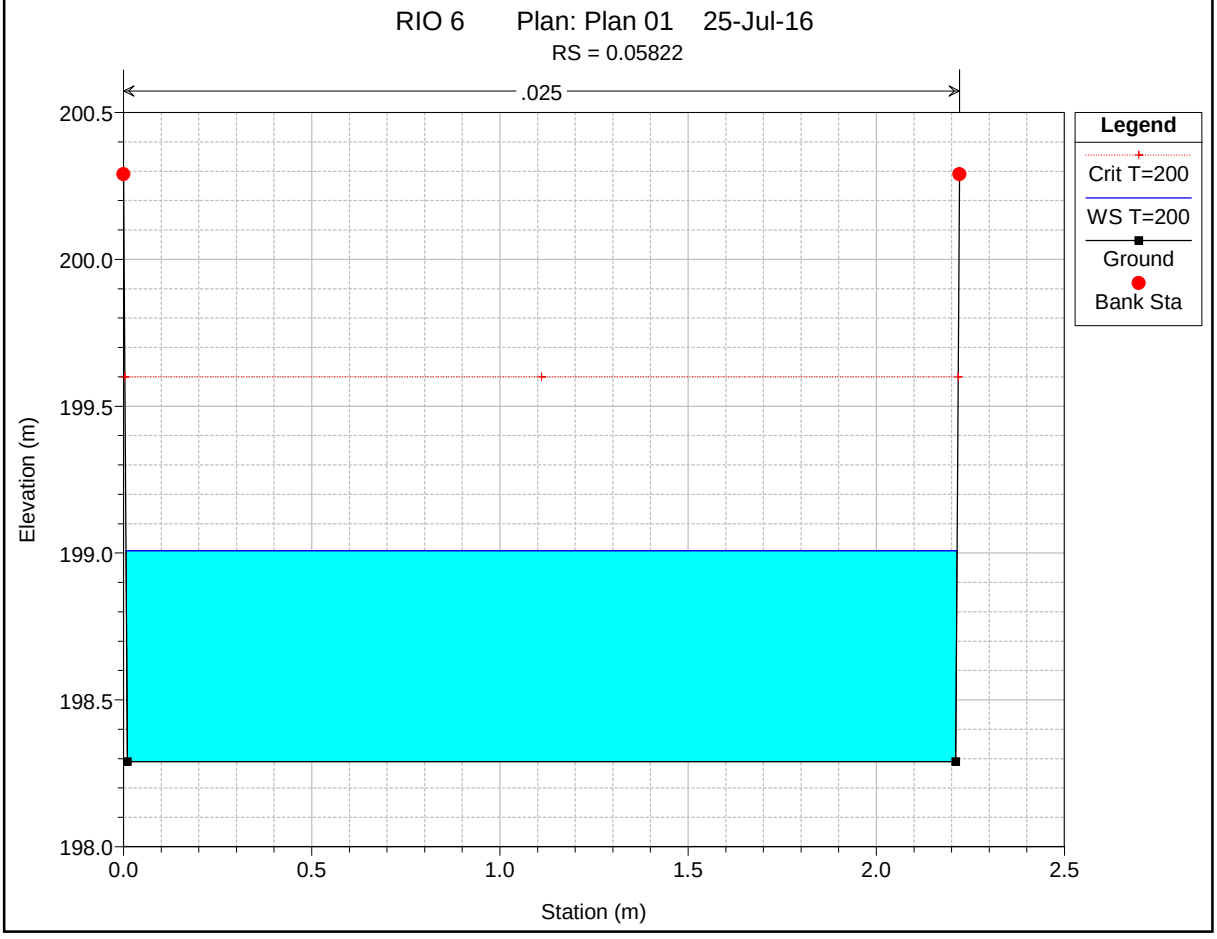

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07043
.025
202.0
201.5
201.0
200.5
200.0
199.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

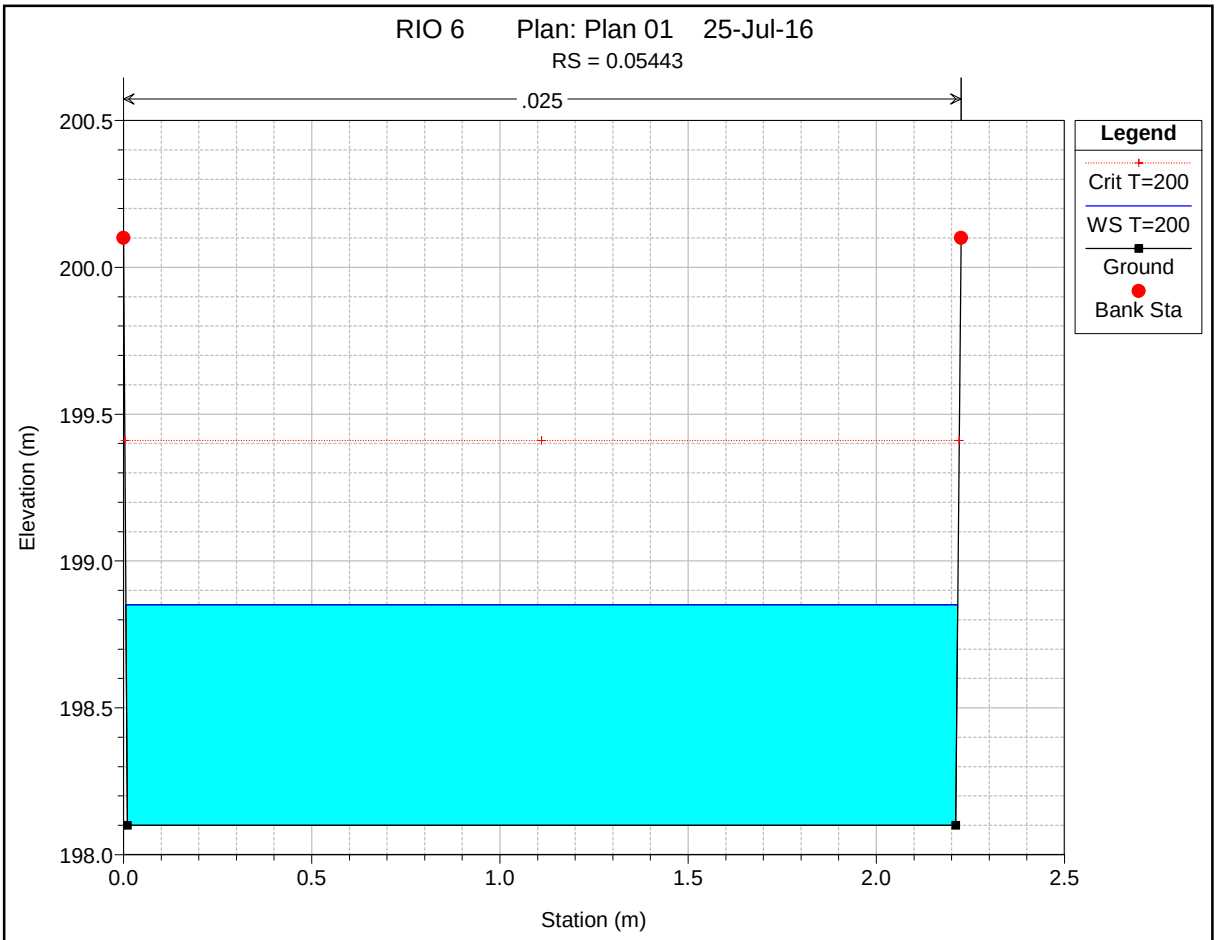

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07039
.025
201.5
201.0
200.5
200.0
199.5
199.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

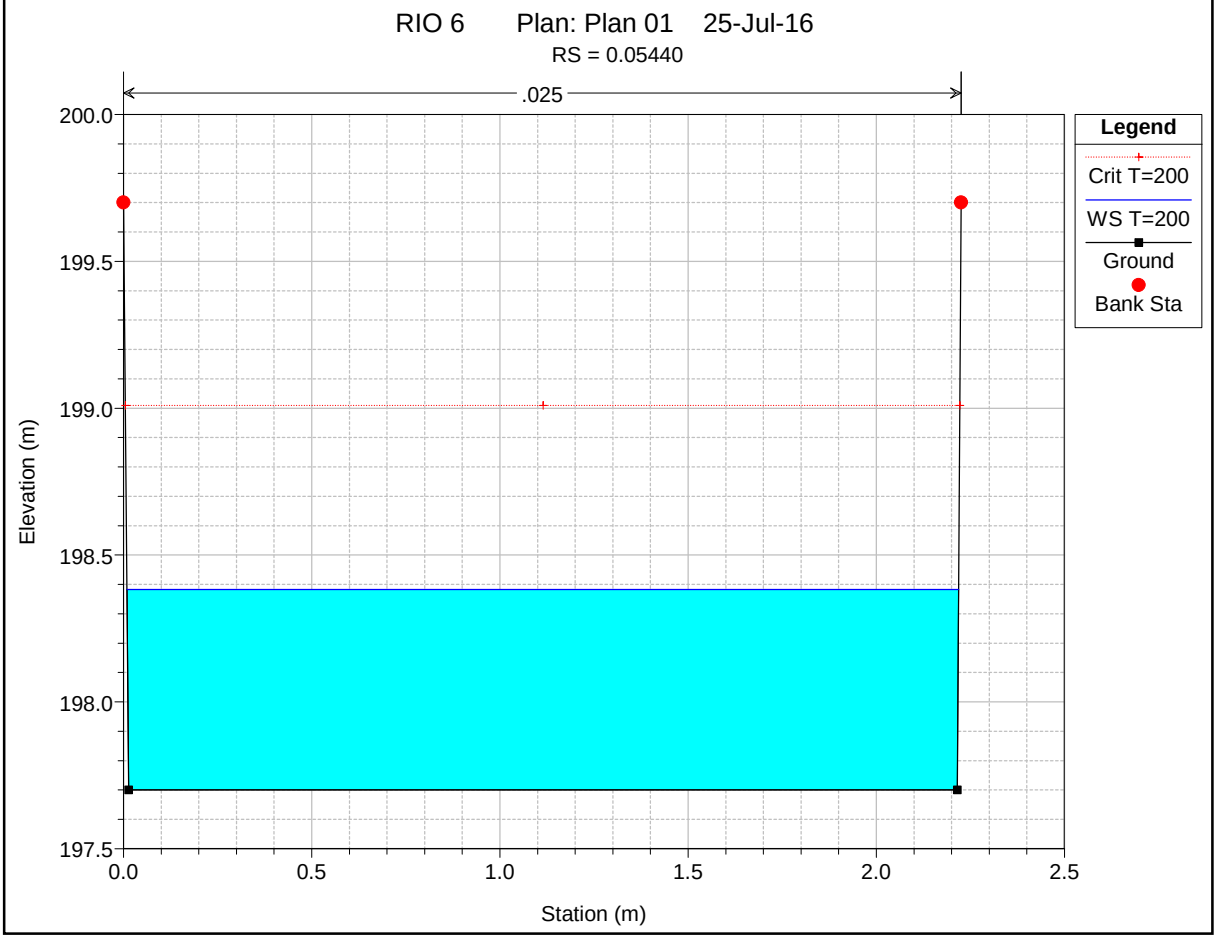

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06646
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
201.5
201.0
200.5
200.0
199.5
199.0
0.0
0.5
1.0
1.5
2.0
2.5

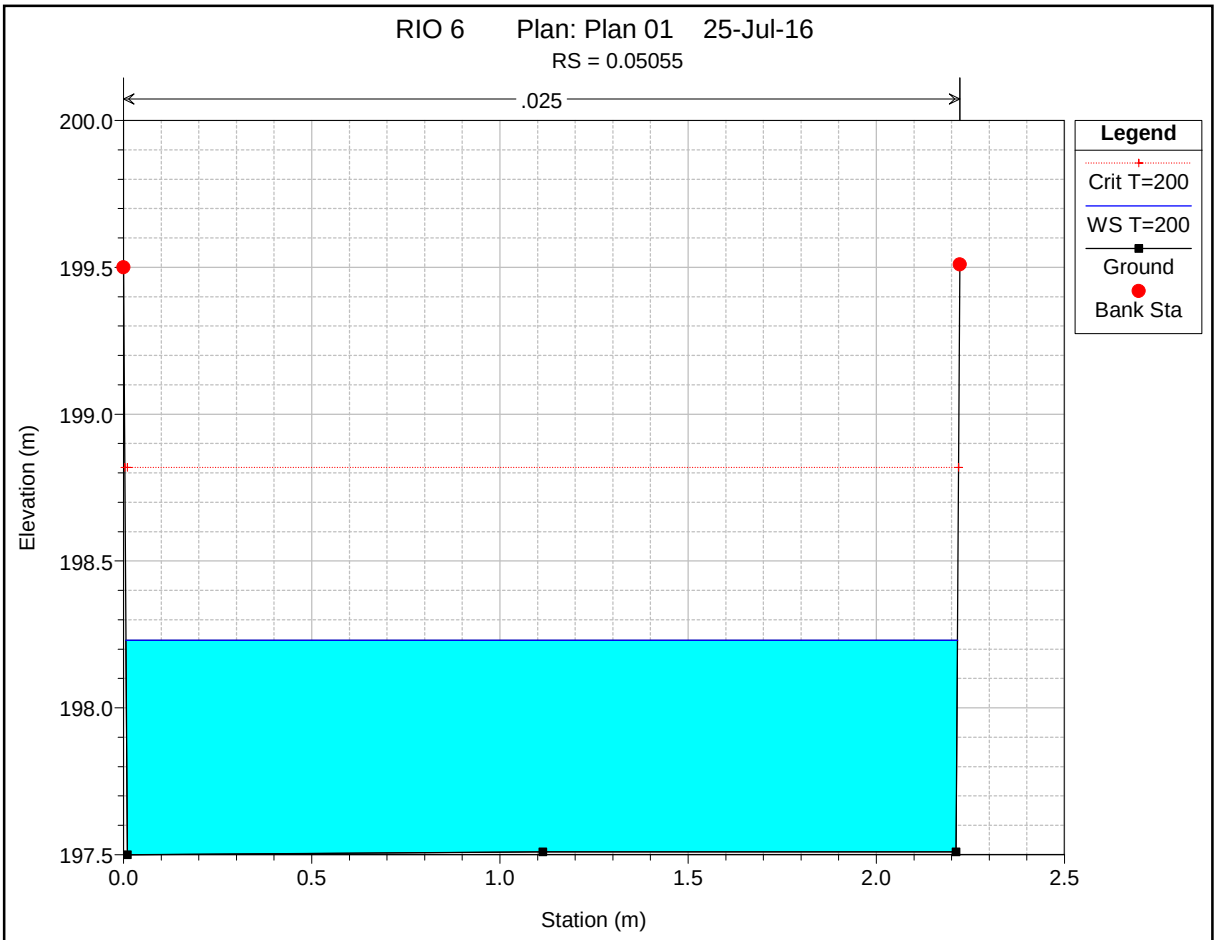

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06243
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
201.0
200.5
200.0
199.5
199.0
198.5
0.0
0.5
1.0
1.5
2.0
2.5

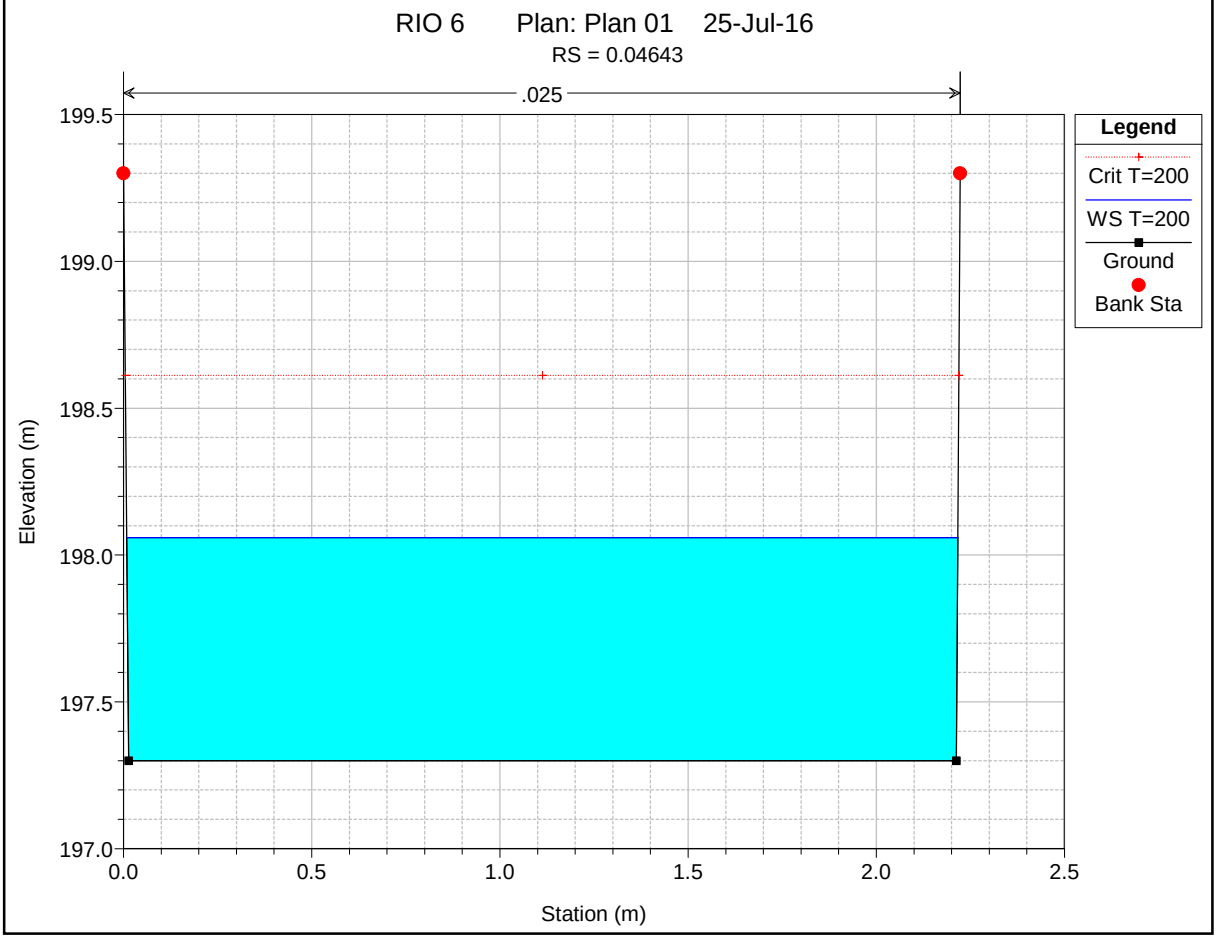

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06239
.025
200.5
200.0
199.5
199.0
198.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

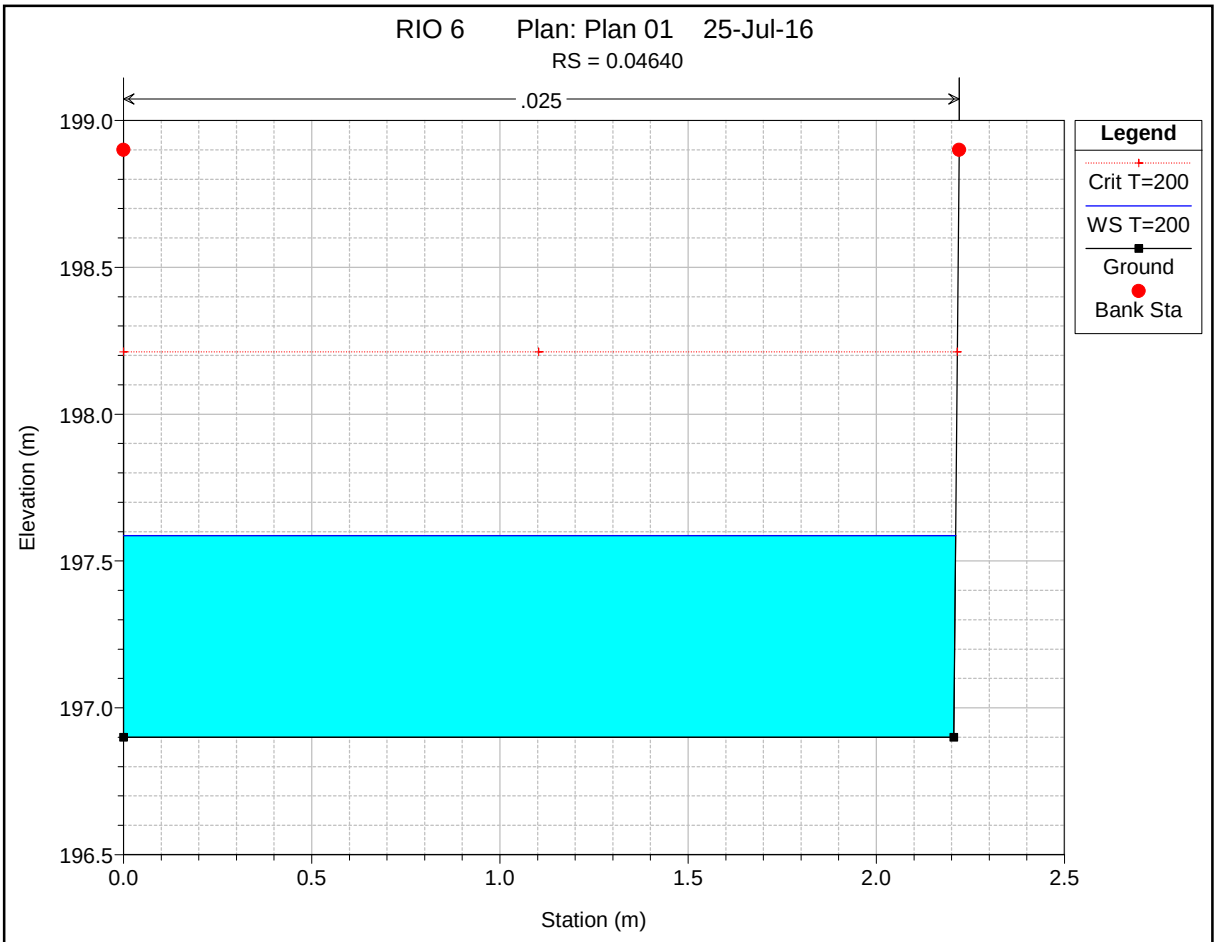

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05822
.025
200.5
200.0
199.5
199.0
198.5
198.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

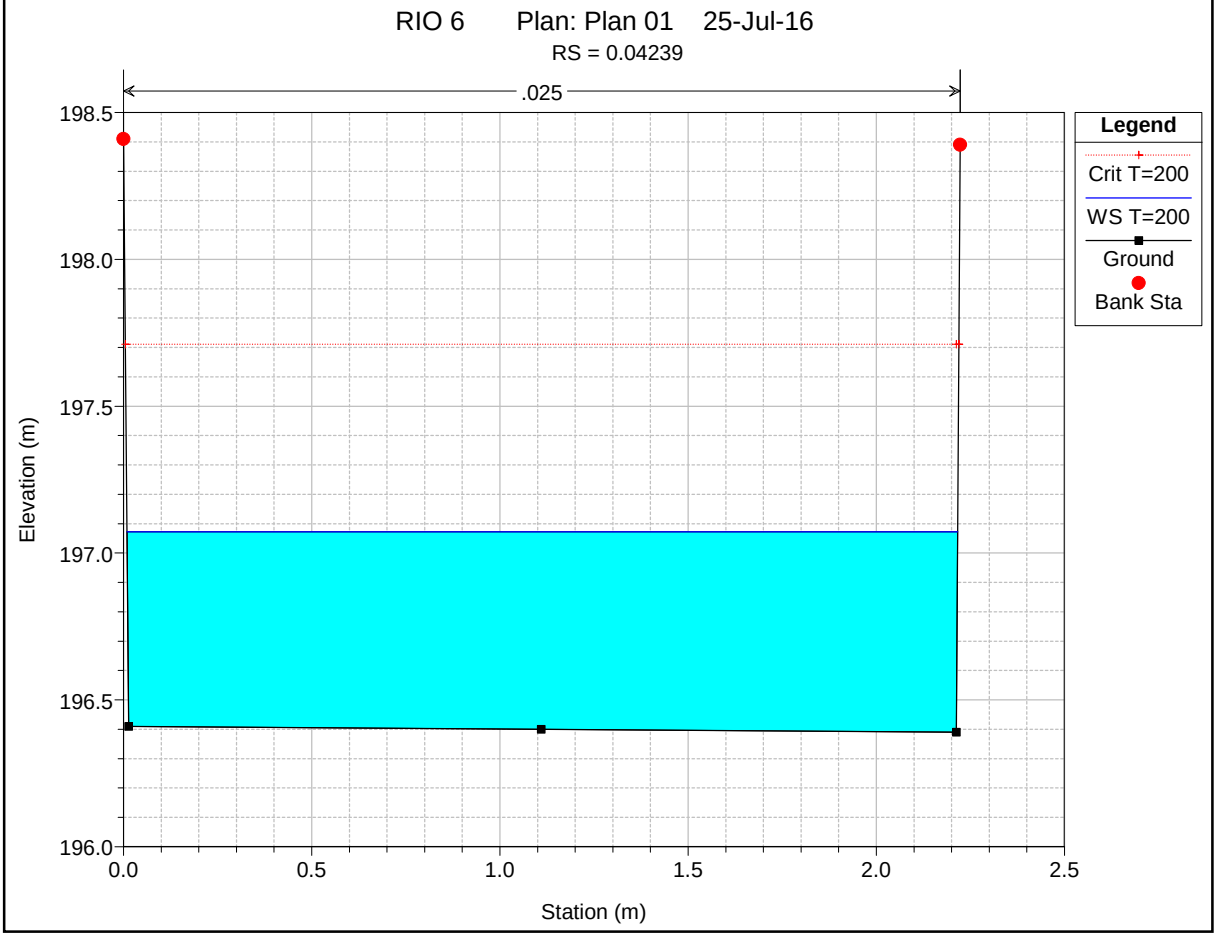

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05443
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
200.5
200.0
199.5
199.0
198.5
198.0
0.0
0.5
1.0
1.5
2.0
2.5

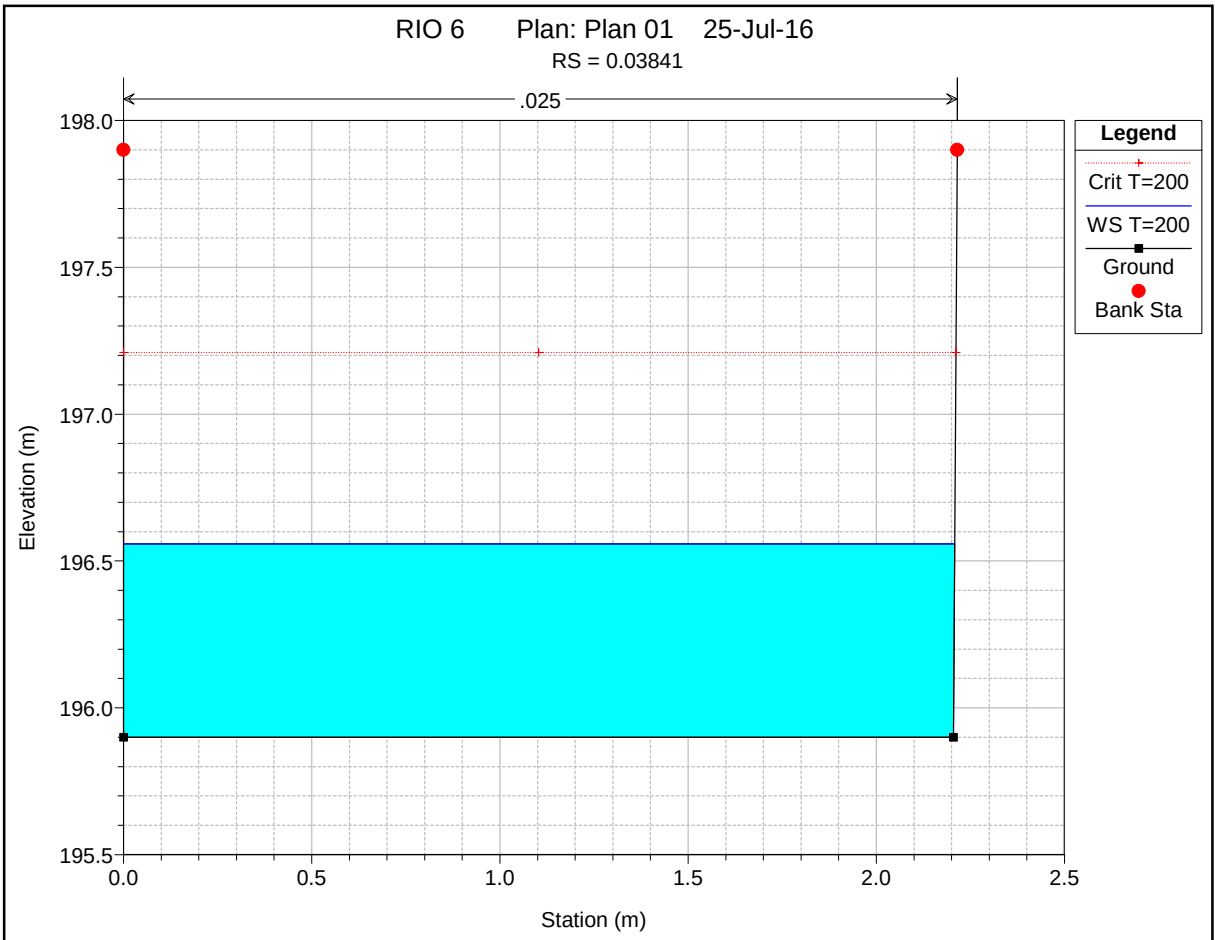

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05440
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
200.0
199.5
199.0
198.5
198.0
197.5
0.0
0.5
1.0
1.5
2.0
2.5

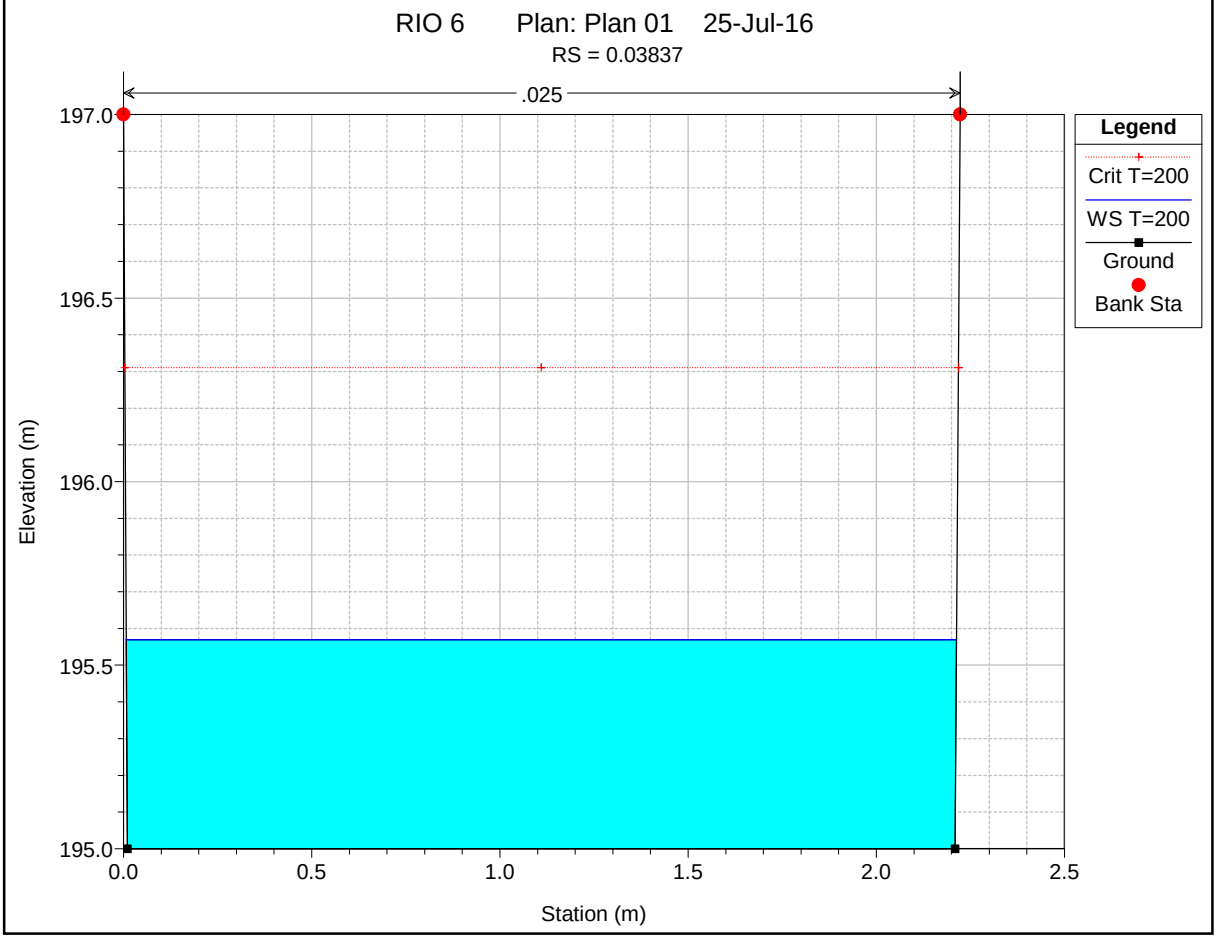

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05055
.025
200.0
199.5
199.0
198.5
198.0
197.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

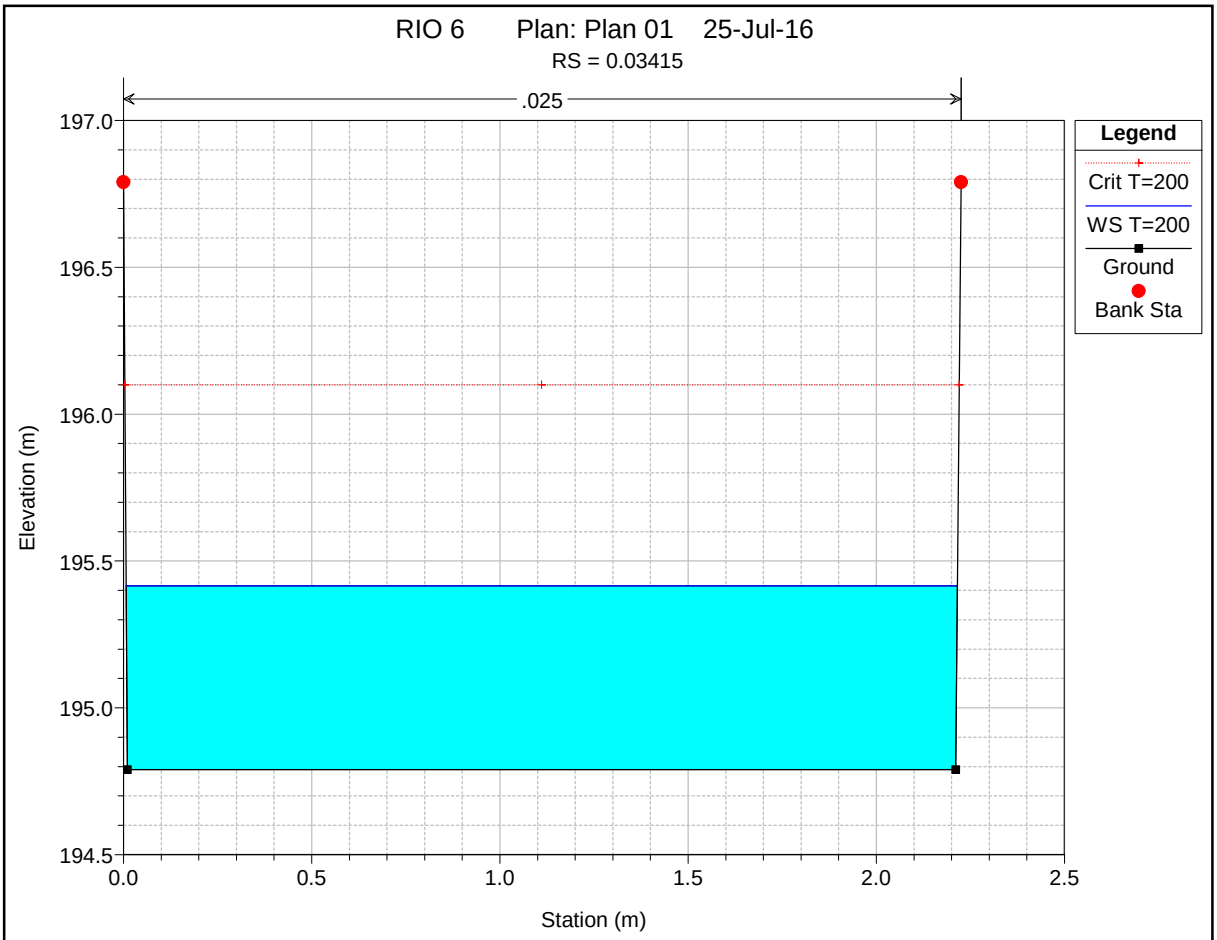

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04643
.025
199.5
199.0
198.5
198.0
197.5
197.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

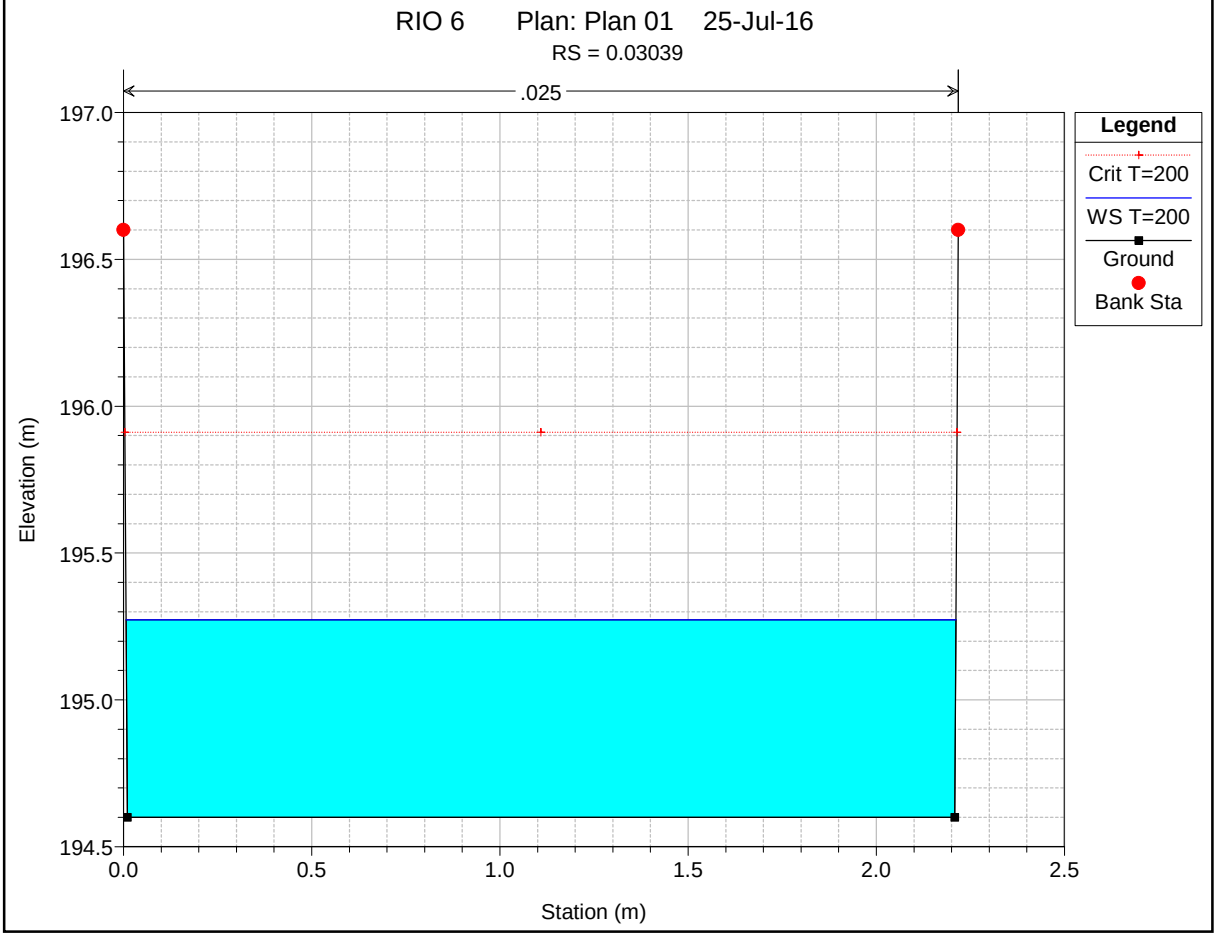

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04640
.025
199.0
198.5
198.0
197.5
197.0
196.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

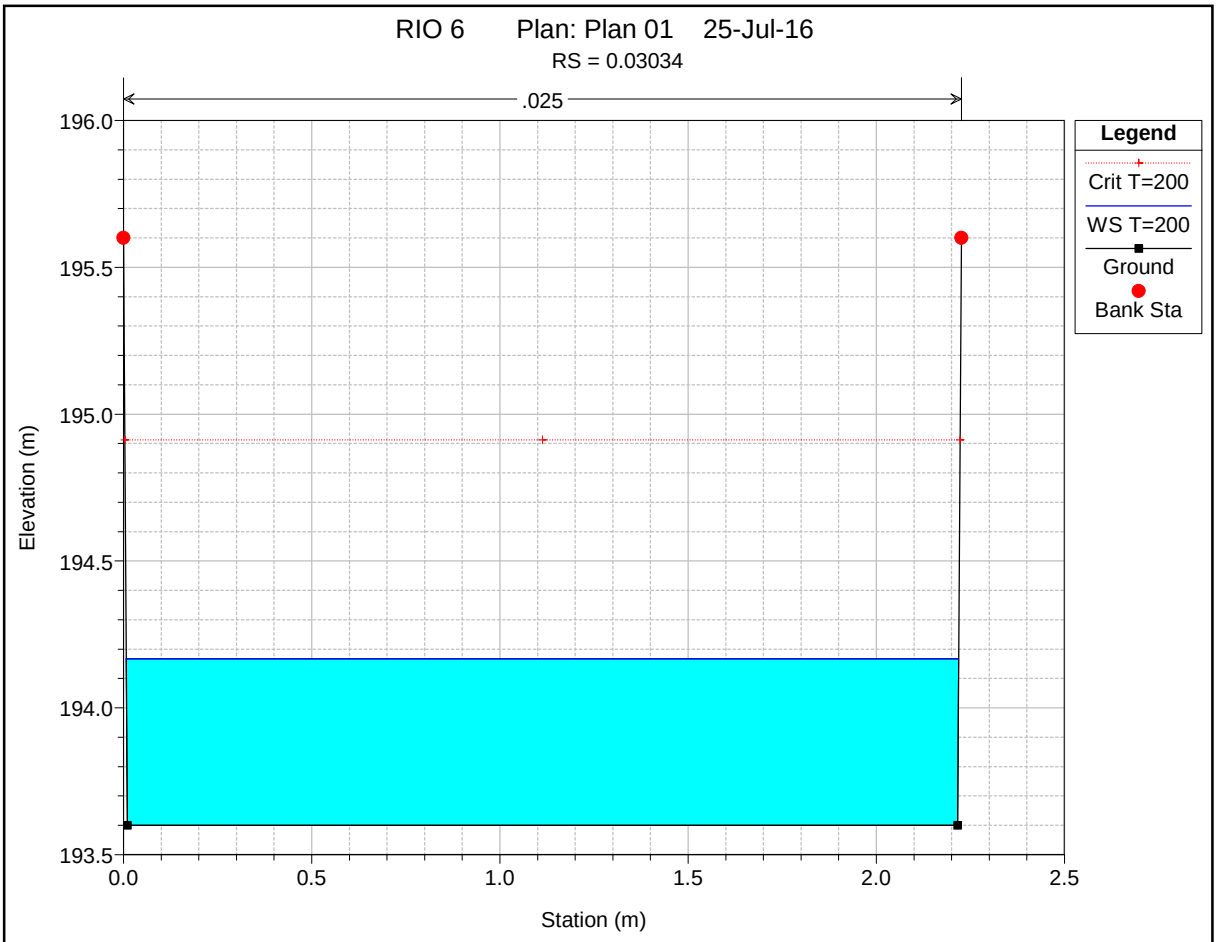

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04239
.025
198.5
198.0
197.5
197.0
196.5
196.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

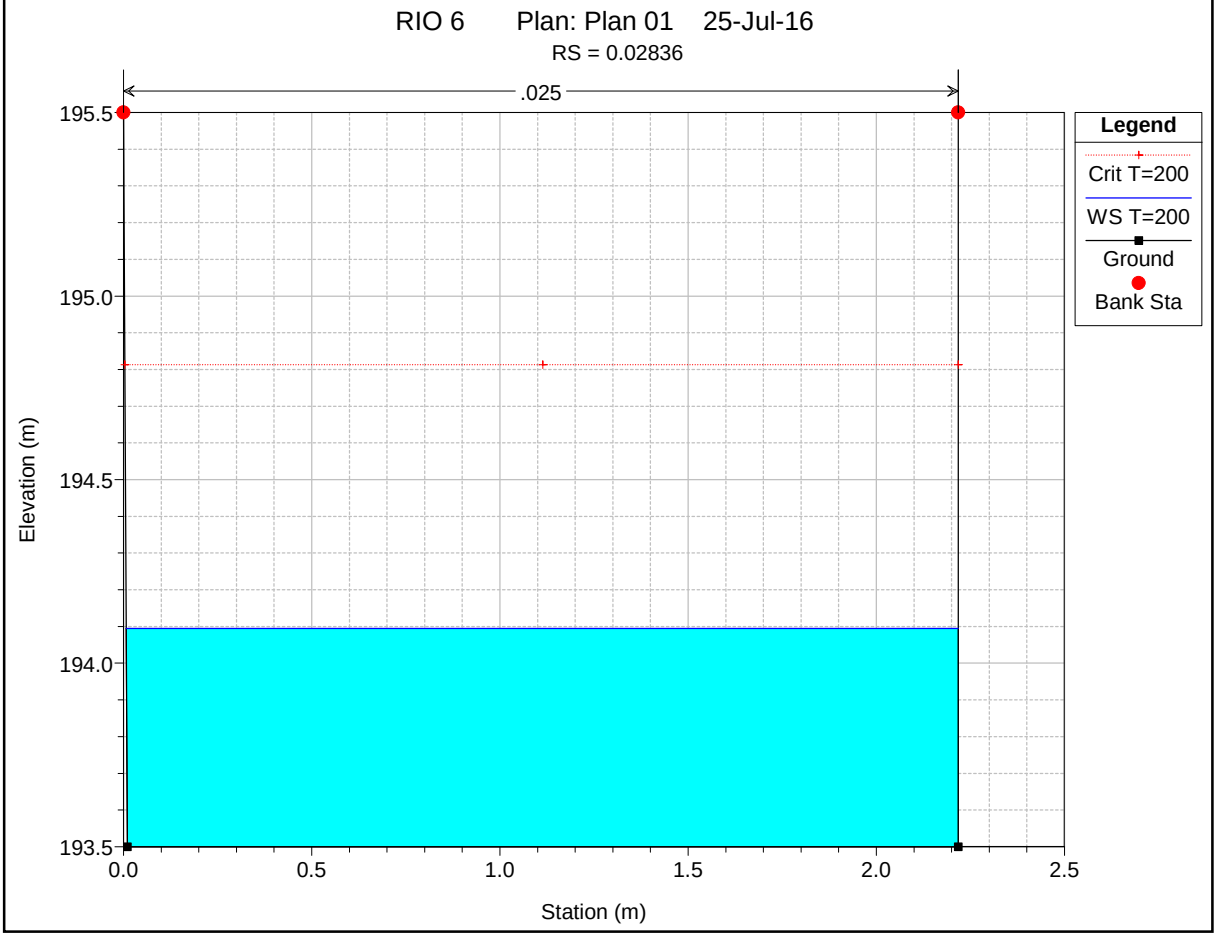

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03841
.025
198.0
197.5
197.0
196.5
196.0
195.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

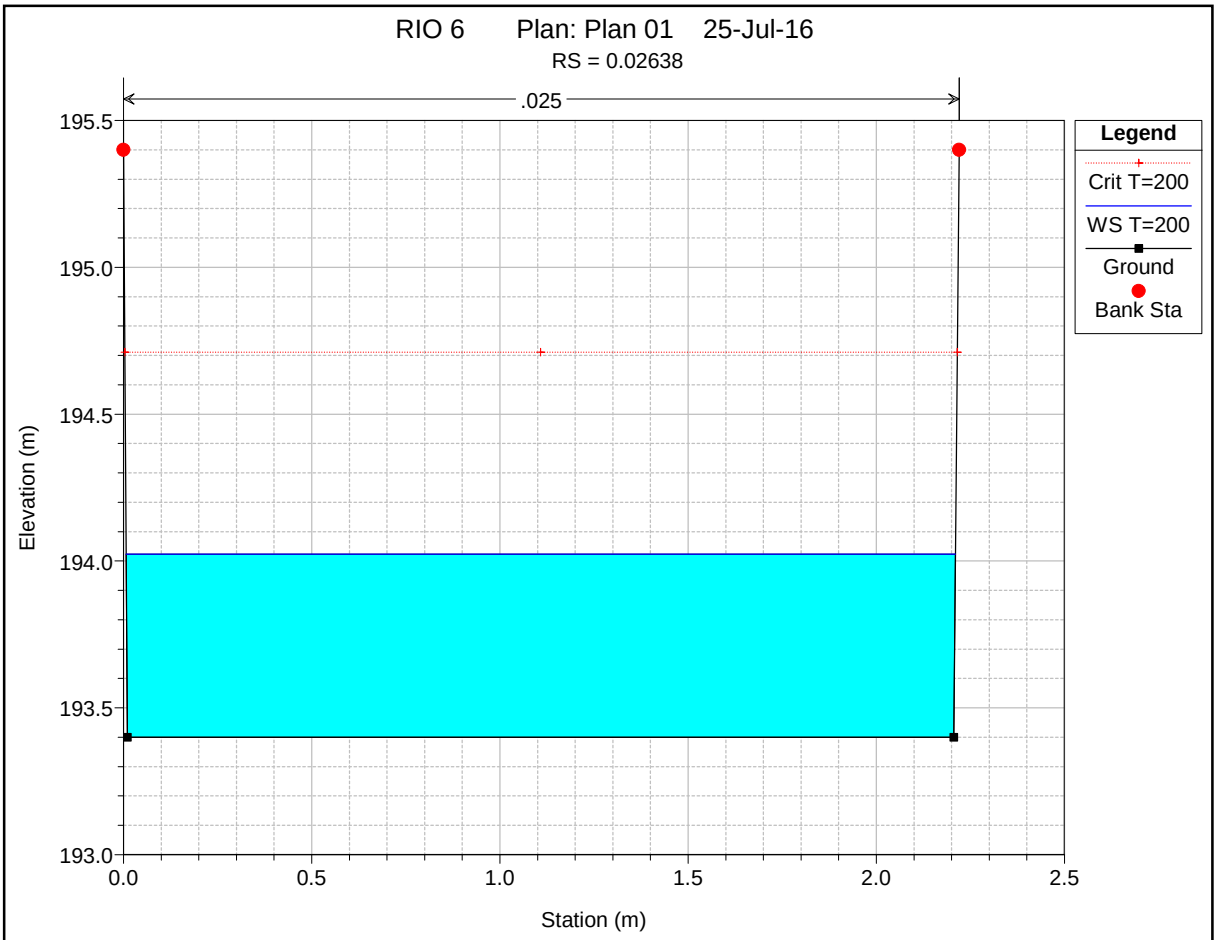

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03837
.025
197.0
196.5
196.0
195.5
195.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

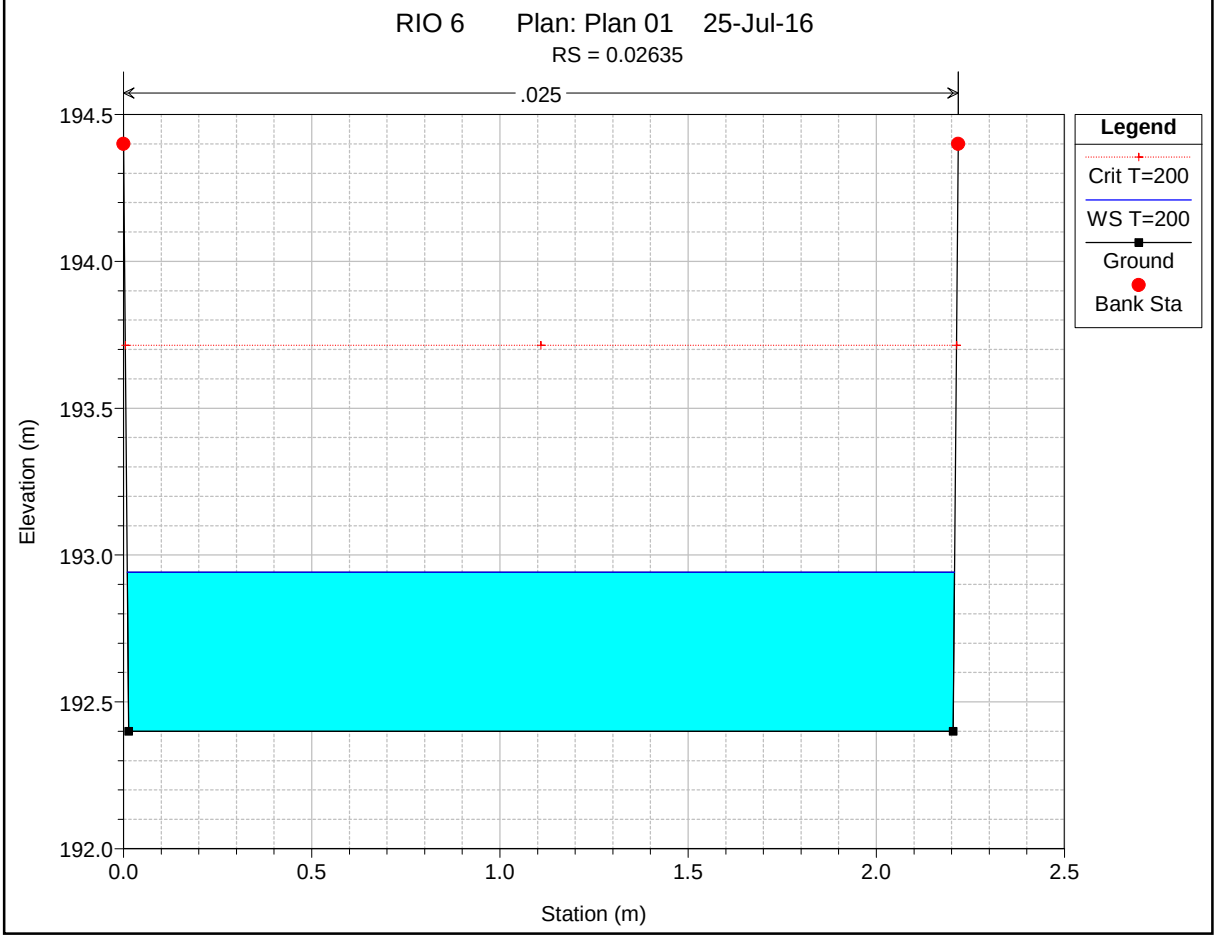

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03415
.025
197.0
196.5
196.0
195.5
195.0
194.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

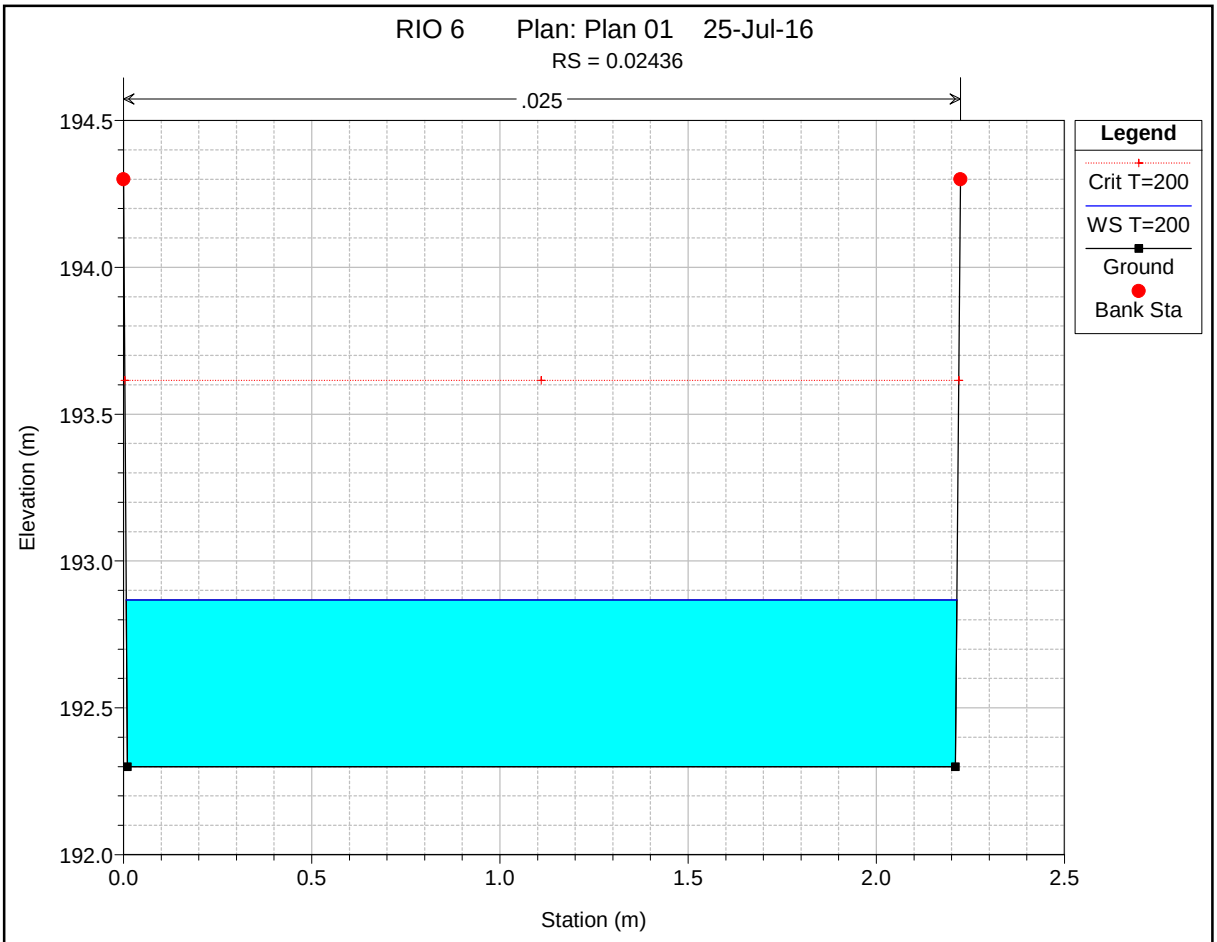

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03039
.025
197.0
196.5
196.0
195.5
195.0
194.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

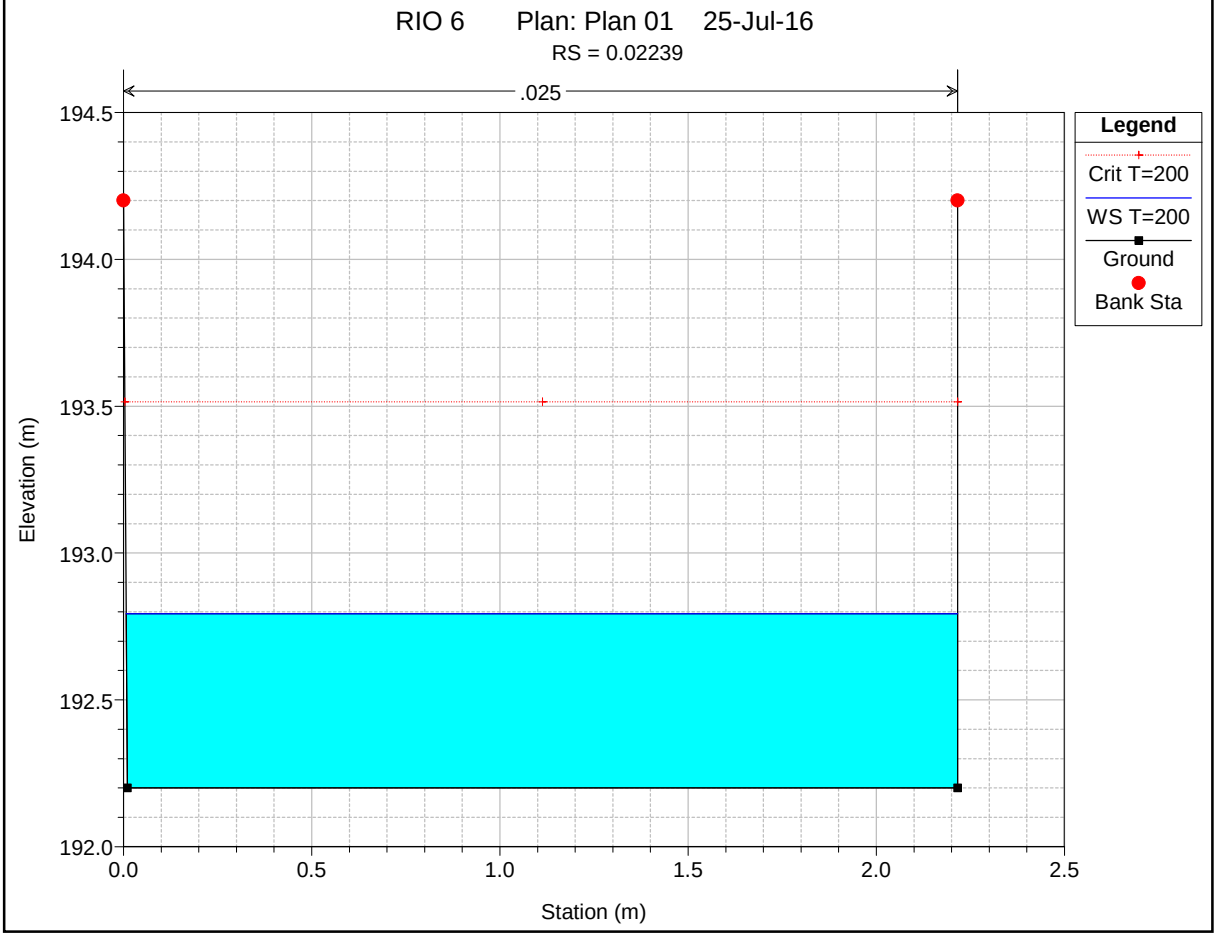

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03034
.025
196.0
195.5
195.0
194.5
194.0
193.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

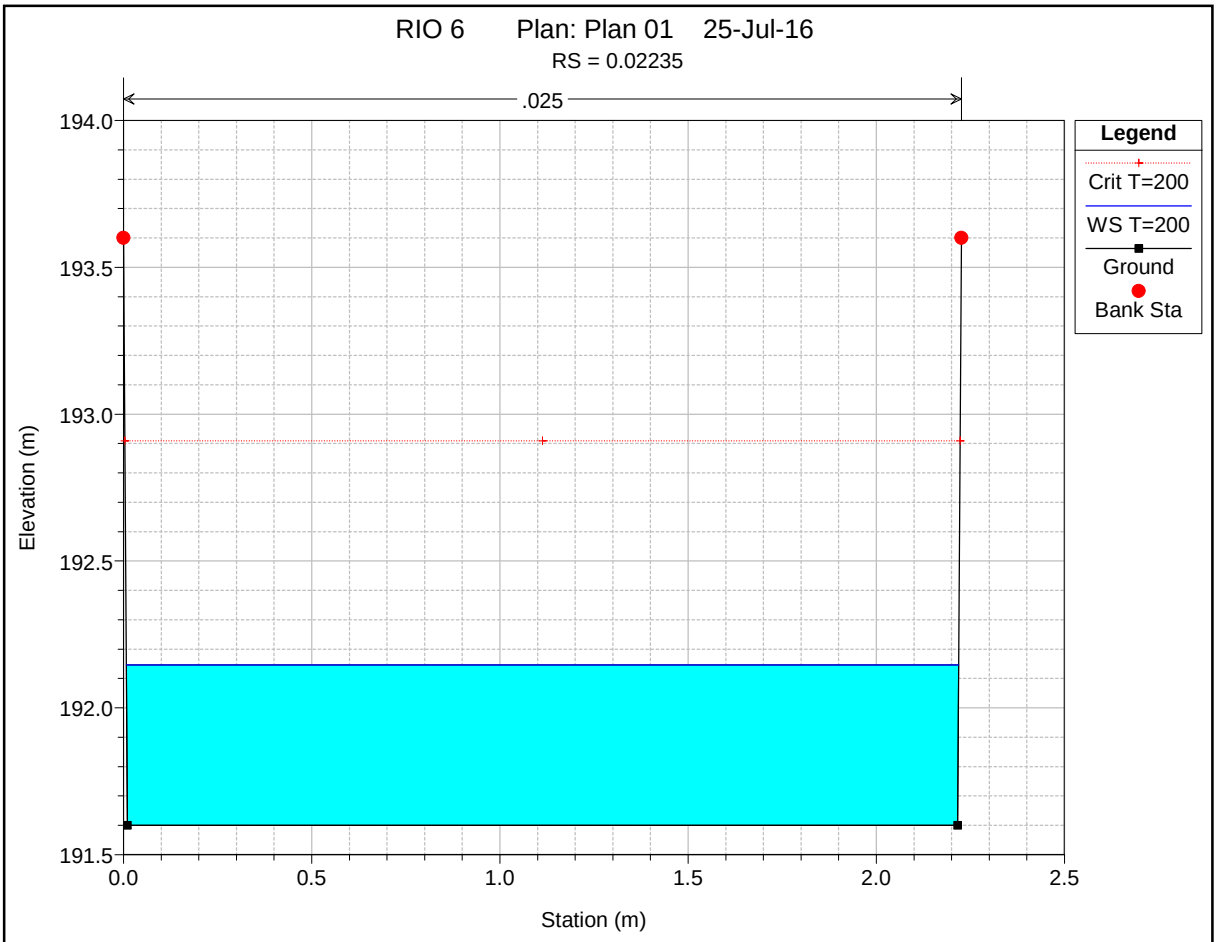

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02836
.025
195.5
195.0
194.5
194.0
193.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

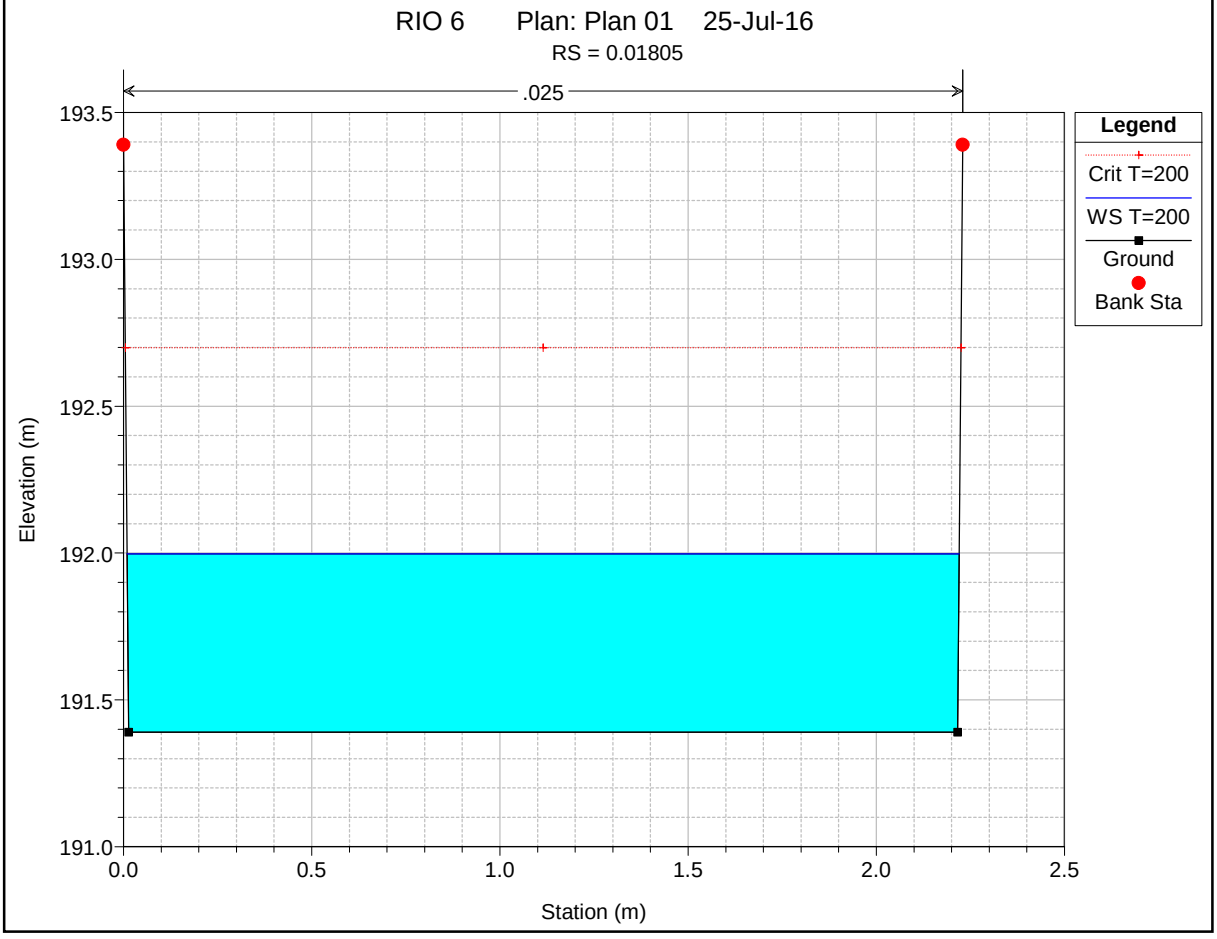

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02638
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
195.5
195.0
194.5
194.0
193.5
193.0
0.0
0.5
1.0
1.5
2.0
2.5

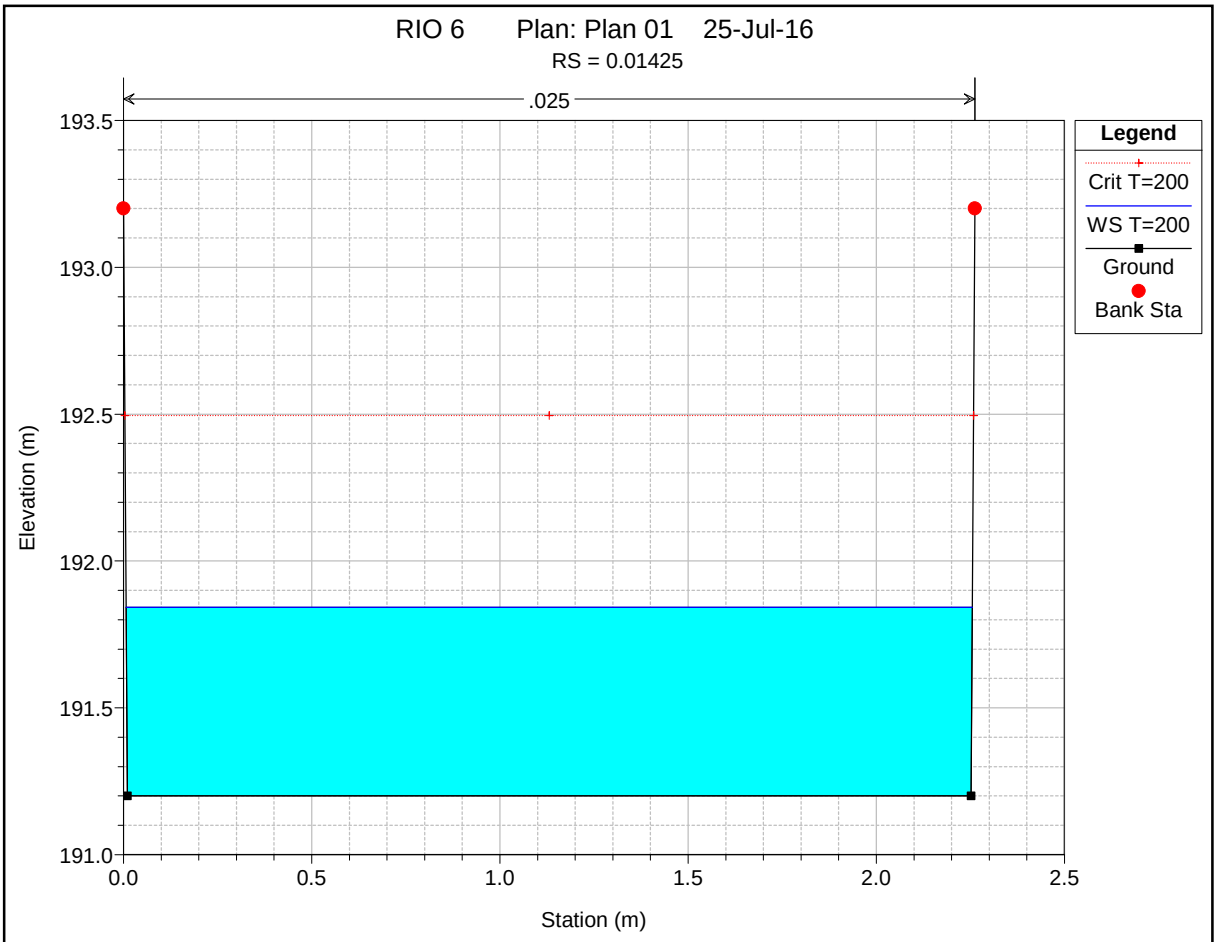

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02635
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
194.5
194.0
193.5
193.0
192.5
192.0
0.0
0.5
1.0
1.5
2.0
2.5

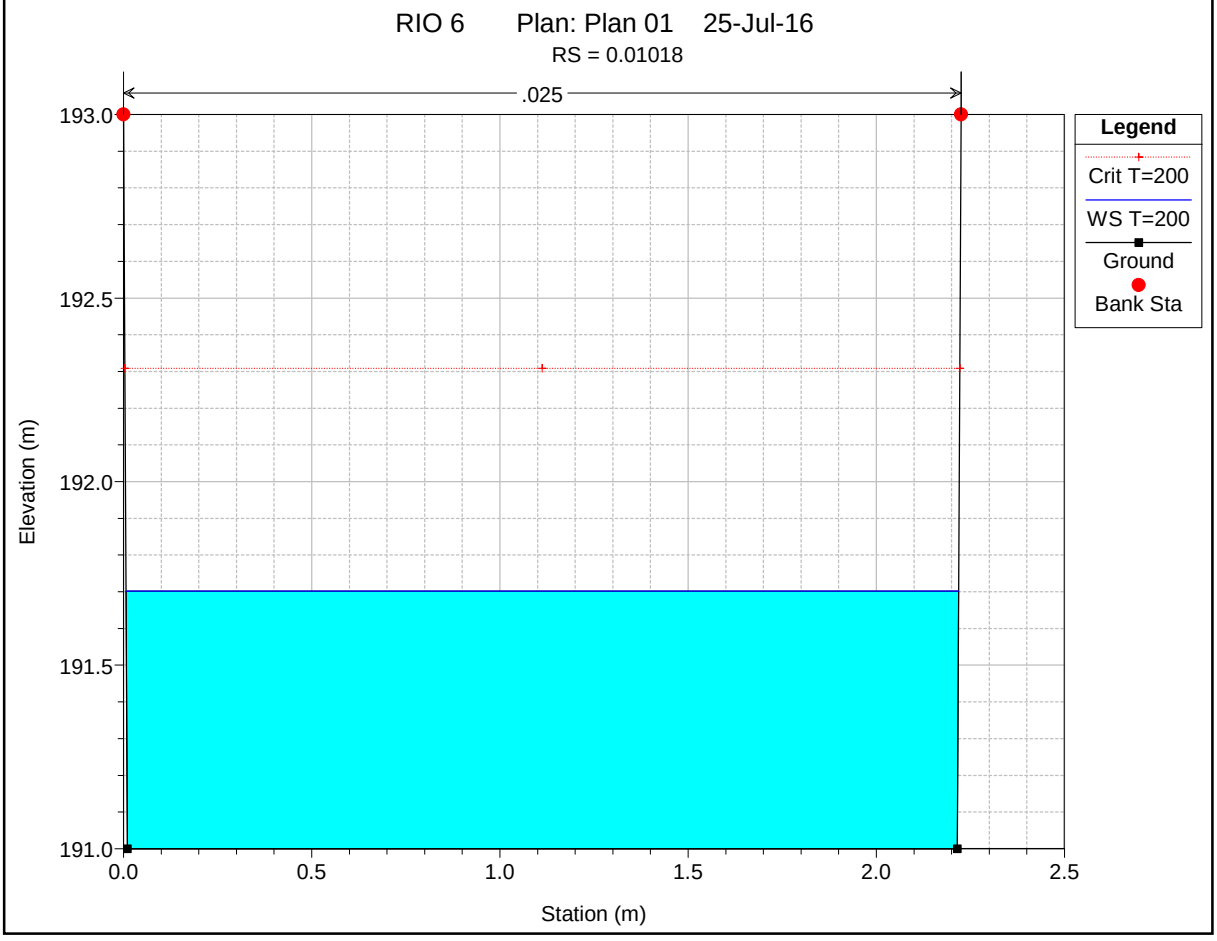

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02436
.025
194.5
194.0
193.5
193.0
192.5
192.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

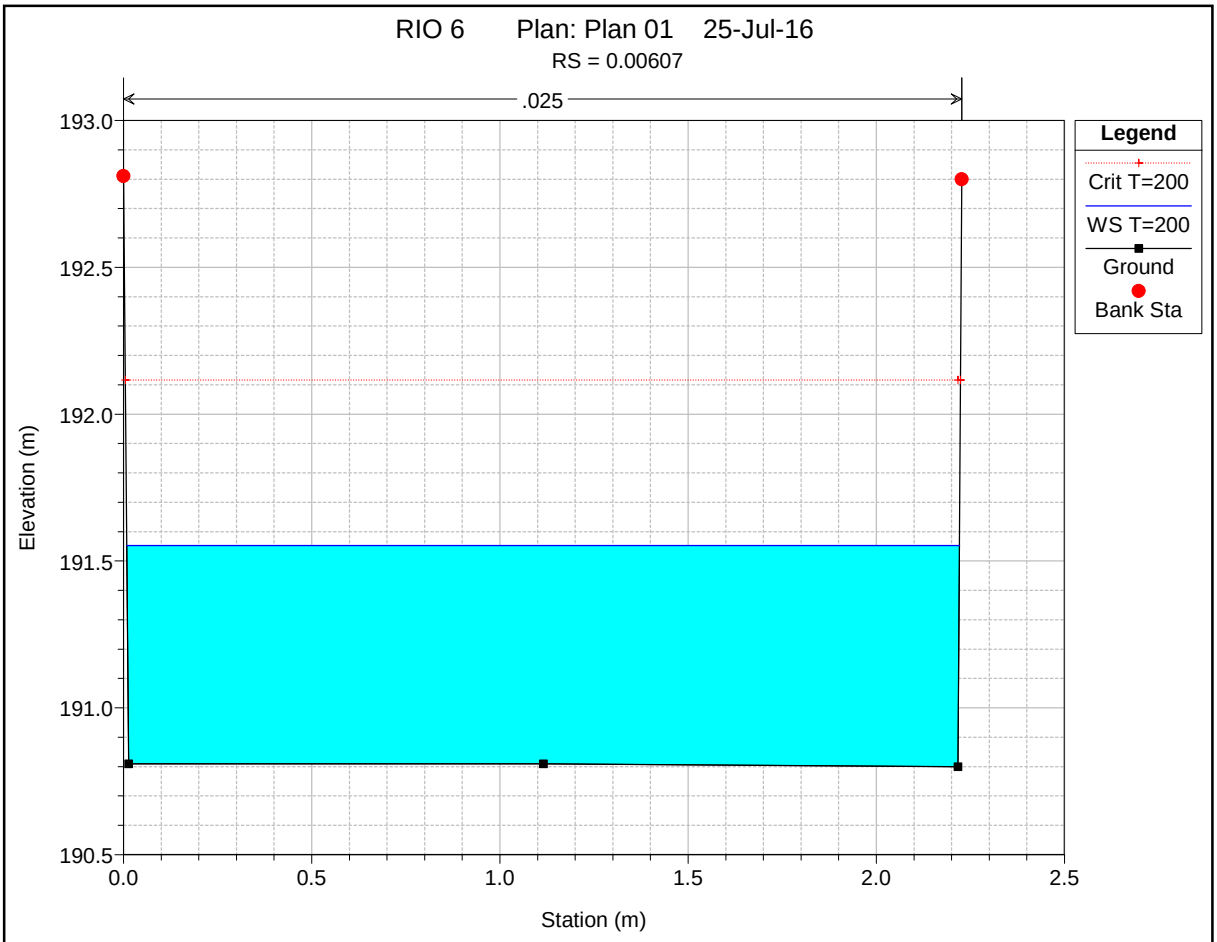

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02239
.025
194.5
194.0
193.5
193.0
192.5
192.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

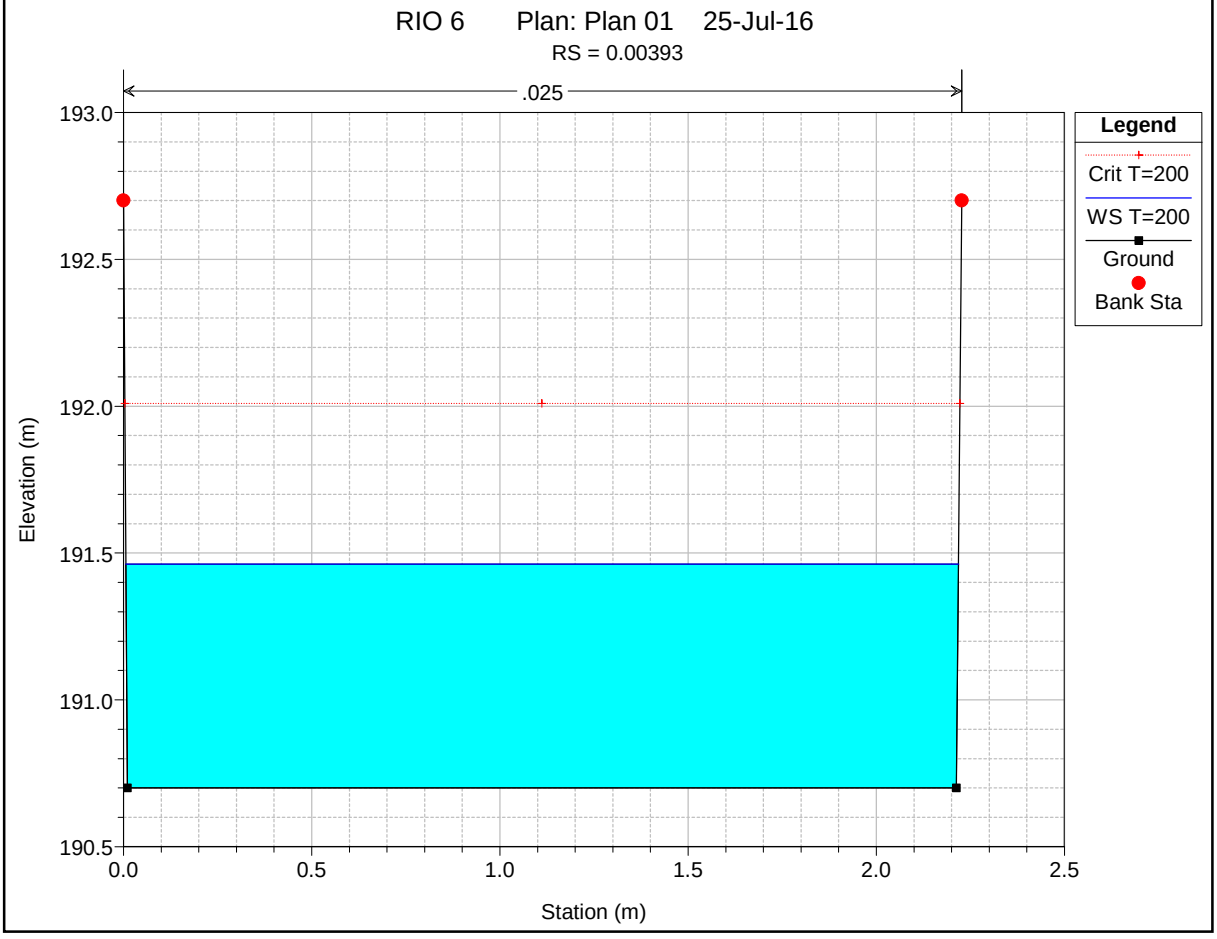

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02235
.025
194.0
193.5
193.0
192.5
192.0
191.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

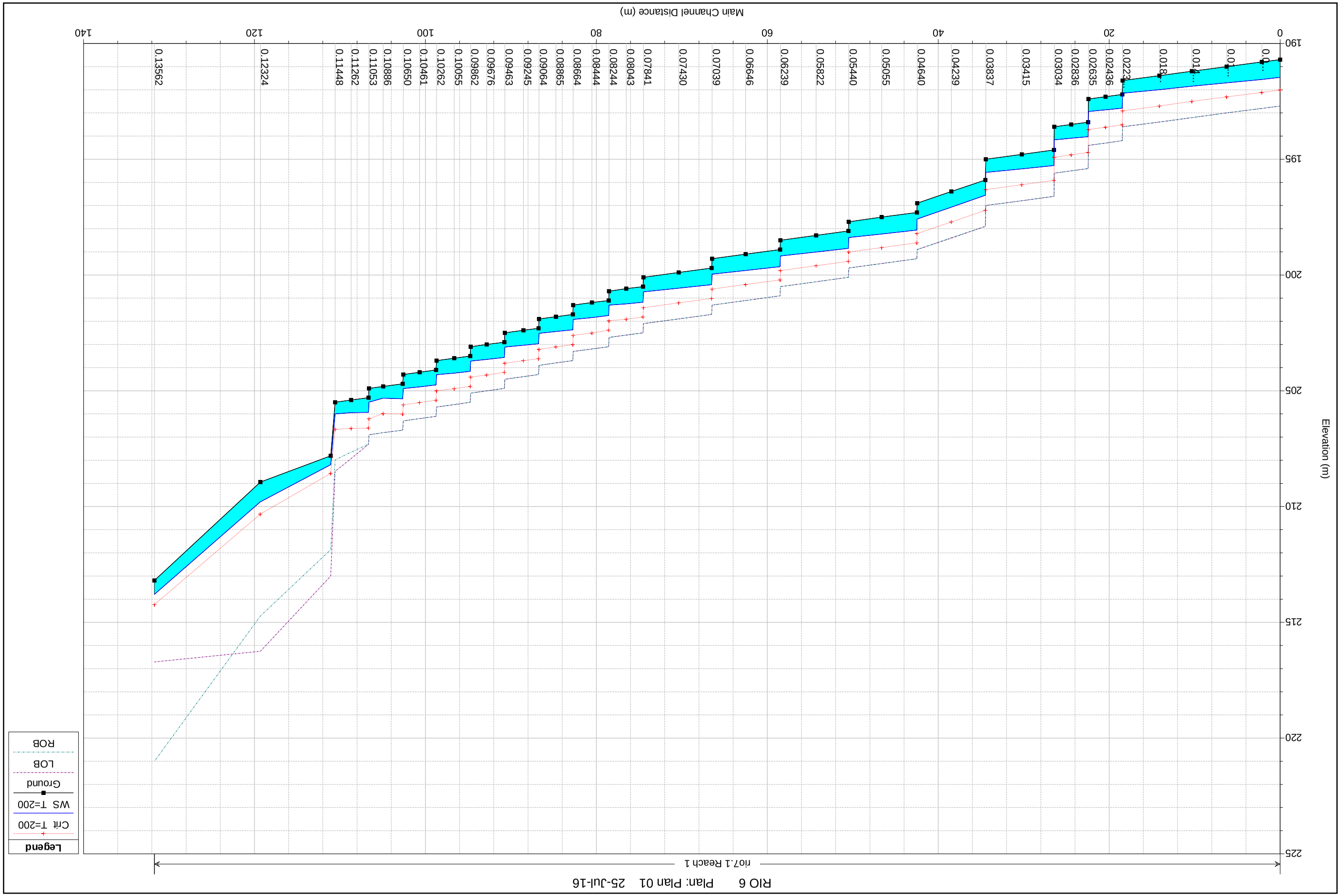

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01805
.025
193.5
193.0
192.5
192.0
191.5
191.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01425
.025
193.5
193.0
192.5
192.0
191.5
191.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

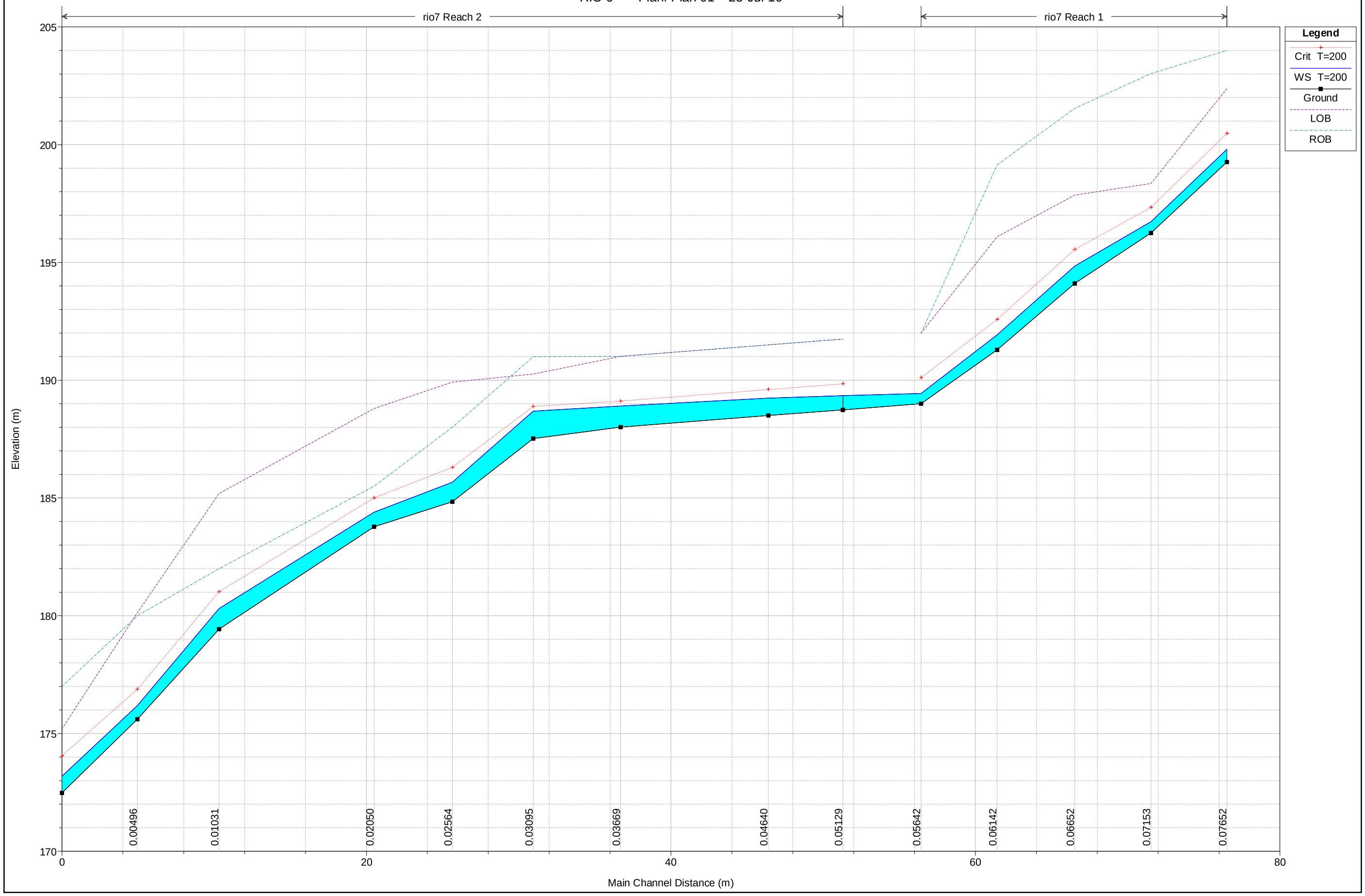

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01018
.025
193.0
192.5
192.0
191.5
191.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00607
.025
193.0
192.5
192.0
191.5
191.0
190.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00393
.025
193.0
192.5
192.0
191.5
191.0
190.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
Main Channel Distance (m)
Elevation (m)
riot.1 Reach 1
Legend
Crit T=200
WS T=200
Ground
LOB
ROB

RIO 6 Plan: Plan 01 25-Jul-16



HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.13562	T=200	10.40	213.19	213.80	214.23	6.37	2.91	216.71	7.20	221.00	2.07	3.53
rio7.1	Reach 1	0.12324	T=200	10.40	208.94	209.80	210.33	6.90	6.45	216.25	4.93	214.73	2.43	3.35
rio7.1	Reach 1	0.11501	T=200	10.40	207.81	208.19	208.57	5.63	4.81	213.00	3.67	211.86	1.62	3.20
rio7.1	Reach 1	0.11448	T=200	10.40	205.50	206.00	206.66	8.31	2.48	208.48	1.99	207.99	3.52	3.99
rio7.1	Reach 1	0.11262	T=200	10.40	205.40	205.95	206.62	7.92	1.98	207.93	1.70	207.65	3.20	3.57
rio7.1	Reach 1	0.11058	T=200	10.40	205.30	205.93	206.61	7.48	1.38	207.31	1.37	207.30	2.85	3.01
rio7.1	Reach 1	0.11053	T=200	10.40	204.90	205.49	206.21	7.98	1.41	206.90	1.41	206.90	3.24	3.31
rio7.1	Reach 1	0.10886	T=200	10.40	204.81	205.32	205.98	7.86	1.49	206.81	1.49	206.81	3.15	3.52
rio7.1	Reach 1	0.10657	T=200	10.40	204.70	205.34	206.00	7.28	1.36	206.70	1.36	206.70	2.70	2.90
rio7.1	Reach 1	0.10650	T=200	10.40	204.30	204.90	205.61	7.79	1.40	206.30	1.40	206.30	3.09	3.20
rio7.1	Reach 1	0.10461	T=200	10.40	204.20	204.83	205.51	7.49	1.37	206.20	1.37	206.20	2.86	3.02
rio7.1	Reach 1	0.10267	T=200	10.40	204.10	204.75	205.40	7.23	1.35	206.10	1.35	206.10	2.66	2.87
rio7.1	Reach 1	0.10262	T=200	10.40	203.70	204.31	205.01	7.74	1.39	205.70	1.39	205.70	3.06	3.18
rio7.1	Reach 1	0.10055	T=200	10.40	203.59	204.24	204.91	7.41	1.36	205.60	1.35	205.59	2.80	2.96
rio7.1	Reach 1	0.09868	T=200	10.40	203.50	204.16	204.81	7.16	1.34	205.50	1.34	205.50	2.61	2.82
rio7.1	Reach 1	0.09862	T=200	10.40	203.10	203.72	204.41	7.68	1.38	205.10	1.38	205.10	3.01	3.13
rio7.1	Reach 1	0.09676	T=200	10.40	203.00	203.65	204.32	7.39	1.35	205.00	1.36	205.01	2.79	2.96
rio7.1	Reach 1	0.09468	T=200	10.40	202.90	203.56	204.21	7.13	1.34	204.90	1.34	204.90	2.59	2.81
rio7.1	Reach 1	0.09463	T=200	10.40	202.50	203.11	203.81	7.66	1.39	204.50	1.39	204.50	2.99	3.13
rio7.1	Reach 1	0.09245	T=200	10.40	202.39	203.03	203.70	7.32	1.36	204.39	1.36	204.39	2.73	2.92
rio7.1	Reach 1	0.09068	T=200	10.40	202.30	202.97	203.61	7.09	1.33	204.30	1.33	204.30	2.56	2.78
rio7.1	Reach 1	0.09064	T=200	10.40	201.90	202.52	203.21	7.62	1.38	203.90	1.38	203.90	2.96	3.10
rio7.1	Reach 1	0.08865	T=200	10.40	201.80	202.44	203.11	7.33	1.36	203.80	1.36	203.80	2.74	2.92
rio7.1	Reach 1	0.08667	T=200	10.40	201.70	202.37	203.01	7.07	1.33	203.70	1.33	203.70	2.55	2.77
rio7.1	Reach 1	0.08664	T=200	10.40	201.30	201.92	202.61	7.61	1.38	203.30	1.38	203.30	2.95	3.09
rio7.1	Reach 1	0.08444	T=200	10.40	201.19	201.84	202.50	7.27	1.36	203.20	1.35	203.19	2.70	2.88
rio7.1	Reach 1	0.08248	T=200	10.40	201.10	201.75	202.38	7.06	1.35	203.10	1.35	203.10	2.54	2.80
rio7.1	Reach 1	0.08244	T=200	10.40	200.70	201.30	201.98	7.59	1.40	202.70	1.40	202.70	2.94	3.13
rio7.1	Reach 1	0.08043	T=200	10.40	200.59	201.25	201.90	7.26	1.34	202.59	1.35	202.60	2.69	2.88
rio7.1	Reach 1	0.07846	T=200	10.40	200.50	201.17	201.81	7.00	1.33	202.50	1.33	202.50	2.50	2.73
rio7.1	Reach 1	0.07841	T=200	10.40	200.10	200.72	201.41	7.54	1.38	202.10	1.38	202.10	2.90	3.05
rio7.1	Reach 1	0.07430	T=200	10.40	199.89	200.57	201.20	6.99	1.33	201.90	1.32	201.89	2.49	2.72
rio7.1	Reach 1	0.07043	T=200	10.40	199.70	200.42	201.01	6.58	1.28	201.70	1.28	201.70	2.21	2.49
rio7.1	Reach 1	0.07039	T=200	10.40	199.30	199.96	200.61	7.17	1.34	201.30	1.34	201.30	2.62	2.82
rio7.1	Reach 1	0.06646	T=200	10.40	199.10	199.80	200.41	6.73	1.30	201.10	1.30	201.10	2.31	2.56
rio7.1	Reach 1	0.06243	T=200	10.40	198.90	199.64	200.21	6.37	1.26	200.90	1.26	200.90	2.07	2.36
rio7.1	Reach 1	0.06239	T=200	10.40	198.50	199.18	199.81	6.99	1.32	200.50	1.32	200.50	2.49	2.72
rio7.1	Reach 1	0.05822	T=200	10.40	198.29	199.01	199.60	6.57	1.28	200.29	1.28	200.29	2.20	2.48
rio7.1	Reach 1	0.05443	T=200	10.40	198.10	198.85	199.41	6.27	1.25	200.10	1.25	200.10	2.01	2.31
rio7.1	Reach 1	0.05440	T=200	10.40	197.70	198.38	199.01	6.90	1.32	199.70	1.32	199.70	2.43	2.67
rio7.1	Reach 1	0.05055	T=200	10.40	197.50	198.23	198.82	6.52	1.27	199.50	1.28	199.51	2.17	2.45

HEC-RAS Plan: Plan 01 Profile: T=200 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.04643	T=200	10.40	197.30	198.06	198.61	6.22	1.24	199.30	1.24	199.30	1.97	2.28
rio7.1	Reach 1	0.04640	T=200	10.40	196.90	197.59	198.21	6.86	1.31	198.90	1.31	198.90	2.40	2.65
rio7.1	Reach 1	0.04239	T=200	10.40	196.39	197.07	197.71	7.03	1.34	198.41	1.32	198.39	2.52	2.74
rio7.1	Reach 1	0.03841	T=200	10.40	195.90	196.56	197.21	7.16	1.34	197.90	1.34	197.90	2.62	2.82
rio7.1	Reach 1	0.03837	T=200	10.40	195.00	195.57	196.31	8.30	1.43	197.00	1.43	197.00	3.51	3.51
rio7.1	Reach 1	0.03415	T=200	10.40	194.79	195.42	196.10	7.54	1.37	196.79	1.37	196.79	2.90	3.05
rio7.1	Reach 1	0.03039	T=200	10.40	194.60	195.27	195.91	7.02	1.33	196.60	1.33	196.60	2.51	2.74
rio7.1	Reach 1	0.03034	T=200	10.40	193.60	194.17	194.91	8.30	1.43	195.60	1.43	195.60	3.51	3.52
rio7.1	Reach 1	0.02836	T=200	10.40	193.50	194.09	194.81	7.92	1.41	195.50	1.41	195.50	3.20	3.28
rio7.1	Reach 1	0.02638	T=200	10.40	193.40	194.02	194.71	7.58	1.38	195.40	1.38	195.40	2.93	3.07
rio7.1	Reach 1	0.02635	T=200	10.40	192.40	192.94	193.71	8.75	1.46	194.40	1.46	194.40	3.91	3.80
rio7.1	Reach 1	0.02436	T=200	10.40	192.30	192.87	193.62	8.31	1.43	194.30	1.43	194.30	3.52	3.53
rio7.1	Reach 1	0.02239	T=200	10.40	192.20	192.79	193.51	7.93	1.41	194.20	1.41	194.20	3.21	3.29
rio7.1	Reach 1	0.02235	T=200	10.40	191.60	192.15	192.91	8.62	1.45	193.60	1.45	193.60	3.79	3.73
rio7.1	Reach 1	0.01805	T=200	10.40	191.39	192.00	192.70	7.76	1.39	193.39	1.39	193.39	3.07	3.18
rio7.1	Reach 1	0.01425	T=200	10.40	191.20	191.84	192.50	7.21	1.36	193.20	1.36	193.20	2.65	2.88
rio7.1	Reach 1	0.01018	T=200	10.40	191.00	191.70	192.31	6.71	1.30	193.00	1.30	193.00	2.29	2.56
rio7.1	Reach 1	0.00607	T=200	10.40	190.80	191.55	192.12	6.32	1.26	192.81	1.25	192.80	2.04	2.34
rio7.1	Reach 1	0.00393	T=200	10.40	190.70	191.46	192.01	6.18	1.24	192.70	1.24	192.70	1.95	2.26
rio7	Reach 1	0.07652	T=200	10.40	199.26	199.80	200.48	9.46	2.58	202.38	4.20	204.00	4.56	4.91
rio7	Reach 1	0.07153	T=200	10.40	196.25	196.73	197.34	9.29	1.62	198.35	6.29	203.02	4.40	5.20
rio7	Reach 1	0.06652	T=200	10.40	194.11	194.85	195.55	8.36	3.01	197.86	6.69	201.54	3.56	3.79
rio7	Reach 1	0.06142	T=200	10.40	191.29	191.93	192.58	8.91	4.16	196.09	7.21	199.14	4.04	4.67
rio7	Reach 1	0.05642	T=200	10.40	189.00	189.44	190.10	8.57	2.56	192.00	2.56	192.00	3.75	4.31
rio7	Reach 2	0.05129	T=200	10.40	188.74	189.35	189.85	6.06	2.39	191.74	2.40	191.75	1.87	2.65
rio7	Reach 2	0.04640	T=200	10.40	188.50	189.24	189.60	4.80	2.26	191.50	2.26	191.50	1.18	1.91
rio7	Reach 2	0.03669	T=200	10.40	188.01	188.90	189.11	3.88	2.11	191.01	2.11	191.01	0.77	1.42
rio7	Reach 2	0.03095	T=200	10.40	187.52	188.69	188.89	3.69	1.57	190.26	2.31	191.00	0.69	1.41
rio7	Reach 2	0.02564	T=200	10.40	184.84	185.67	186.30	7.64	4.25	189.92	2.33	188.00	2.98	3.52
rio7	Reach 2	0.02050	T=200	10.40	183.78	184.40	185.00	7.20	4.40	188.80	1.10	185.50	2.64	3.26
rio7	Reach 2	0.01031	T=200	10.40	179.43	180.31	181.02	8.20	4.88	185.19	1.69	182.00	3.43	3.61
rio7	Reach 2	0.00496	T=200	10.40	175.61	176.18	176.88	9.61	3.95	180.13	3.82	180.00	4.71	5.18
rio7	Reach 2	0.00000	T=200	10.40	172.48	173.19	174.05	9.57	2.01	175.20	3.81	177.00	4.67	4.12

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
				(m)	(m)	(m3/s)
rio7	Reach 1	0.05642	T=200	189.44	193.19	10.40
rio7.1	Reach 1	0.00393	T=200	191.46	193.41	10.40
Junction:	2					
rio7	Reach 2	0.05129	T=200	189.35	191.22	10.40

VERIFICA IDRAULICA

RIO 6 - Tratto intermedio

FASE DI COLTIVAZIONE

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

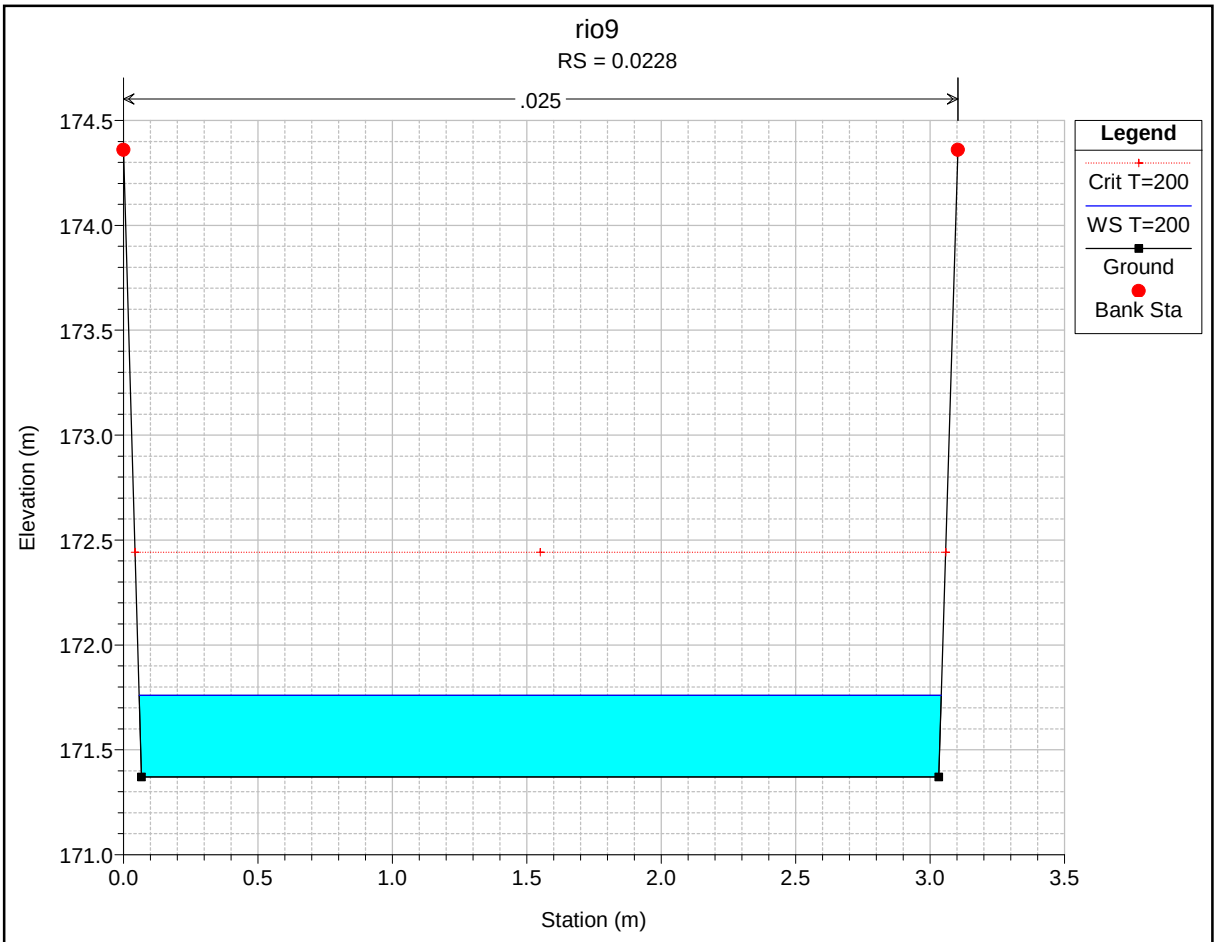
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

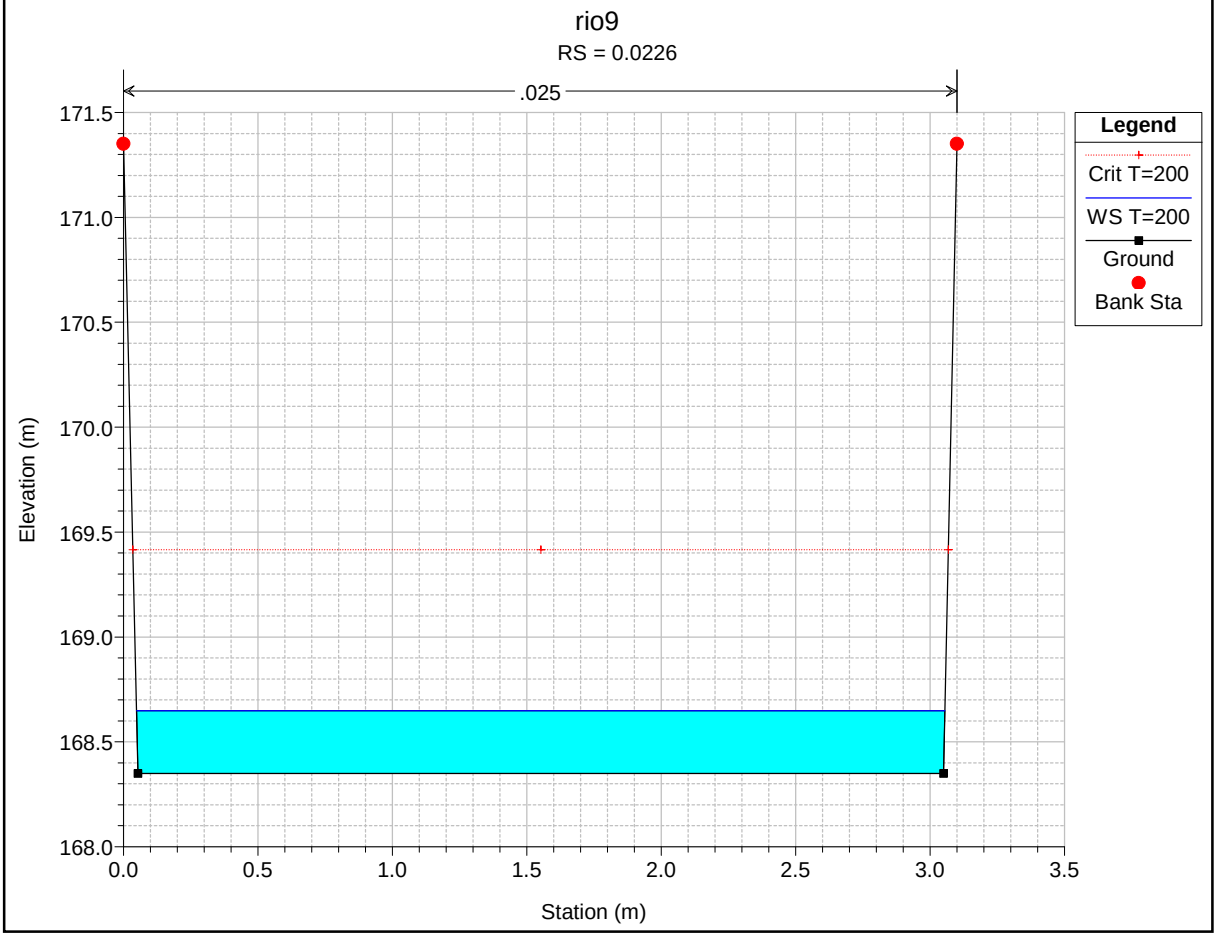
Vel Chnl = Velocità della corrente nel canale.

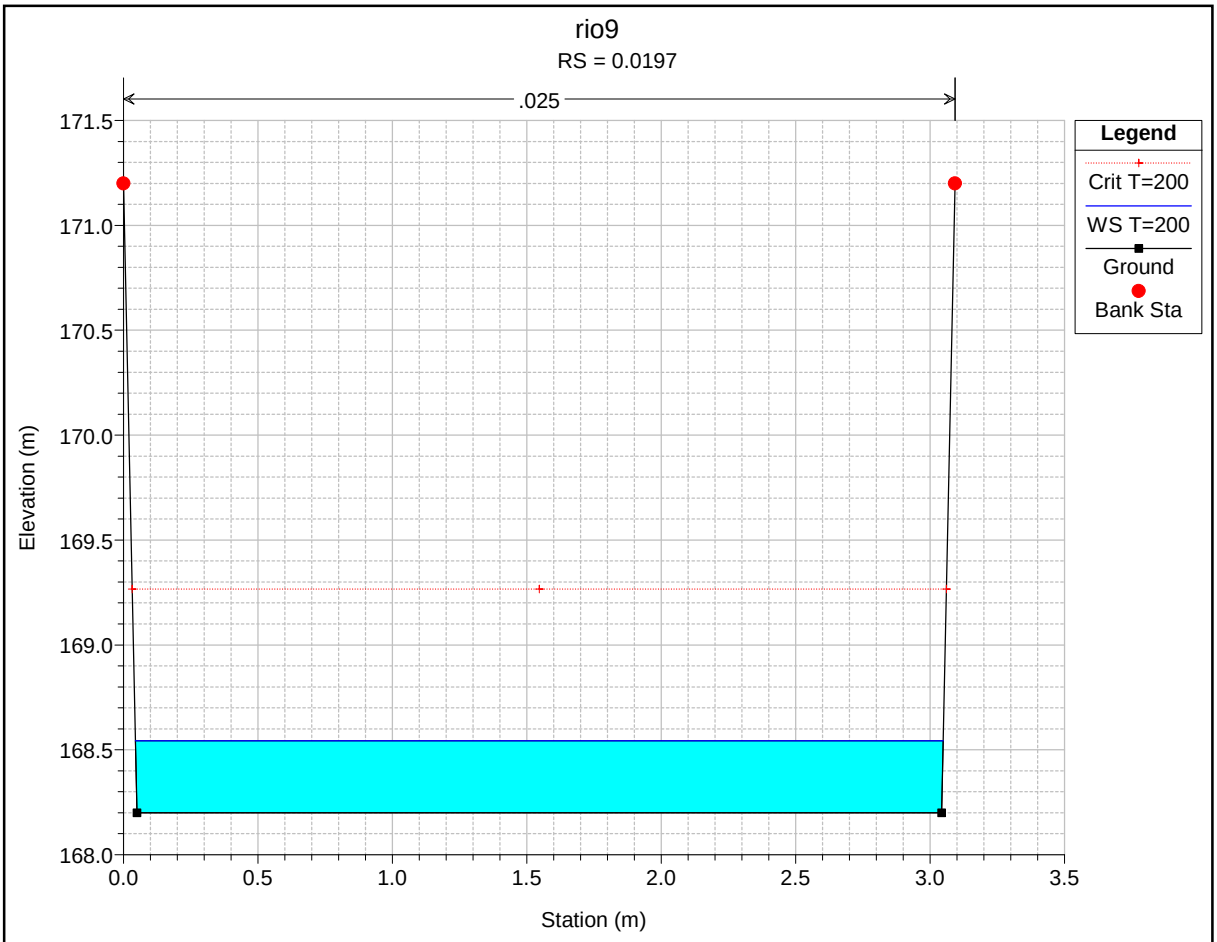
Froude = n° di froude della corrente.

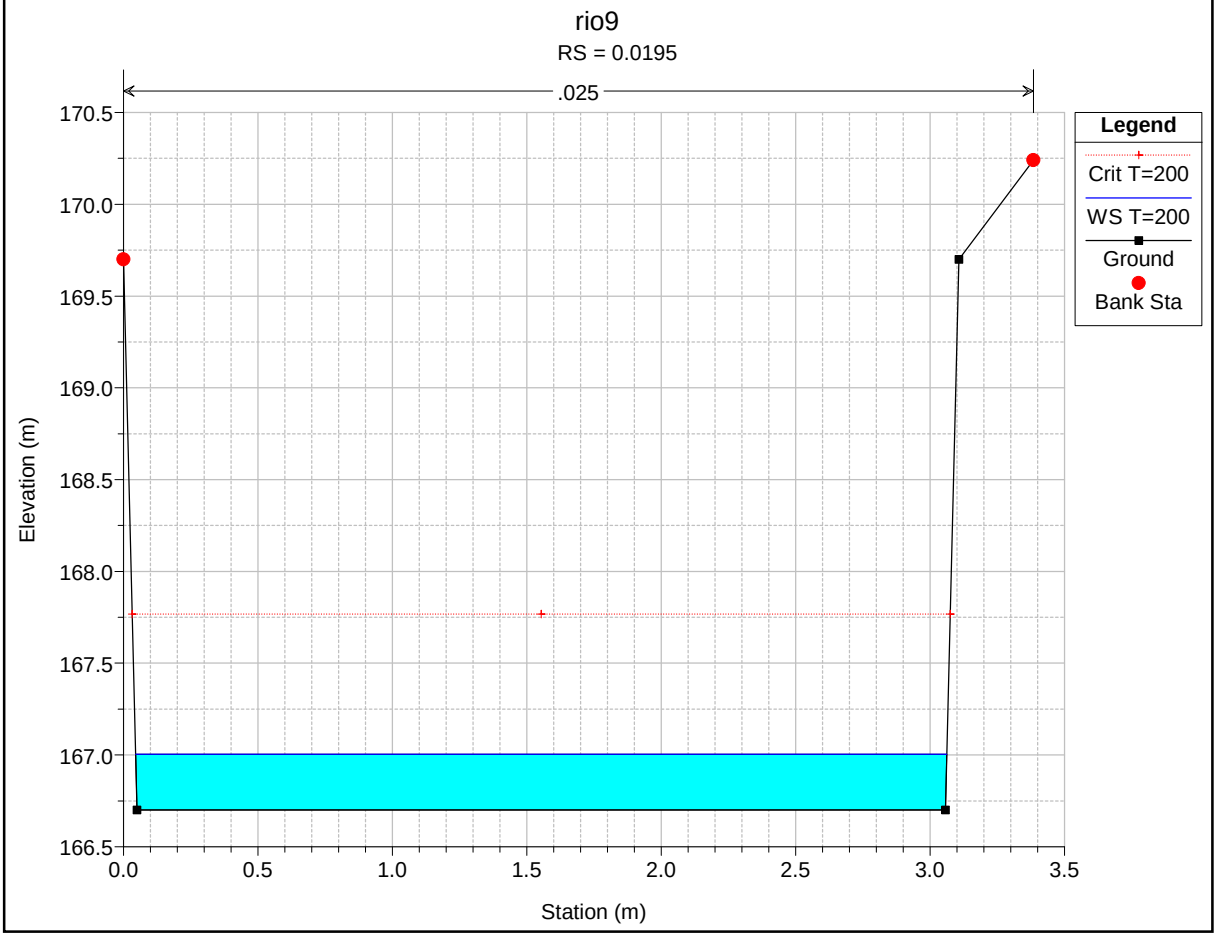
Vel. Head = $U^2/2g$.

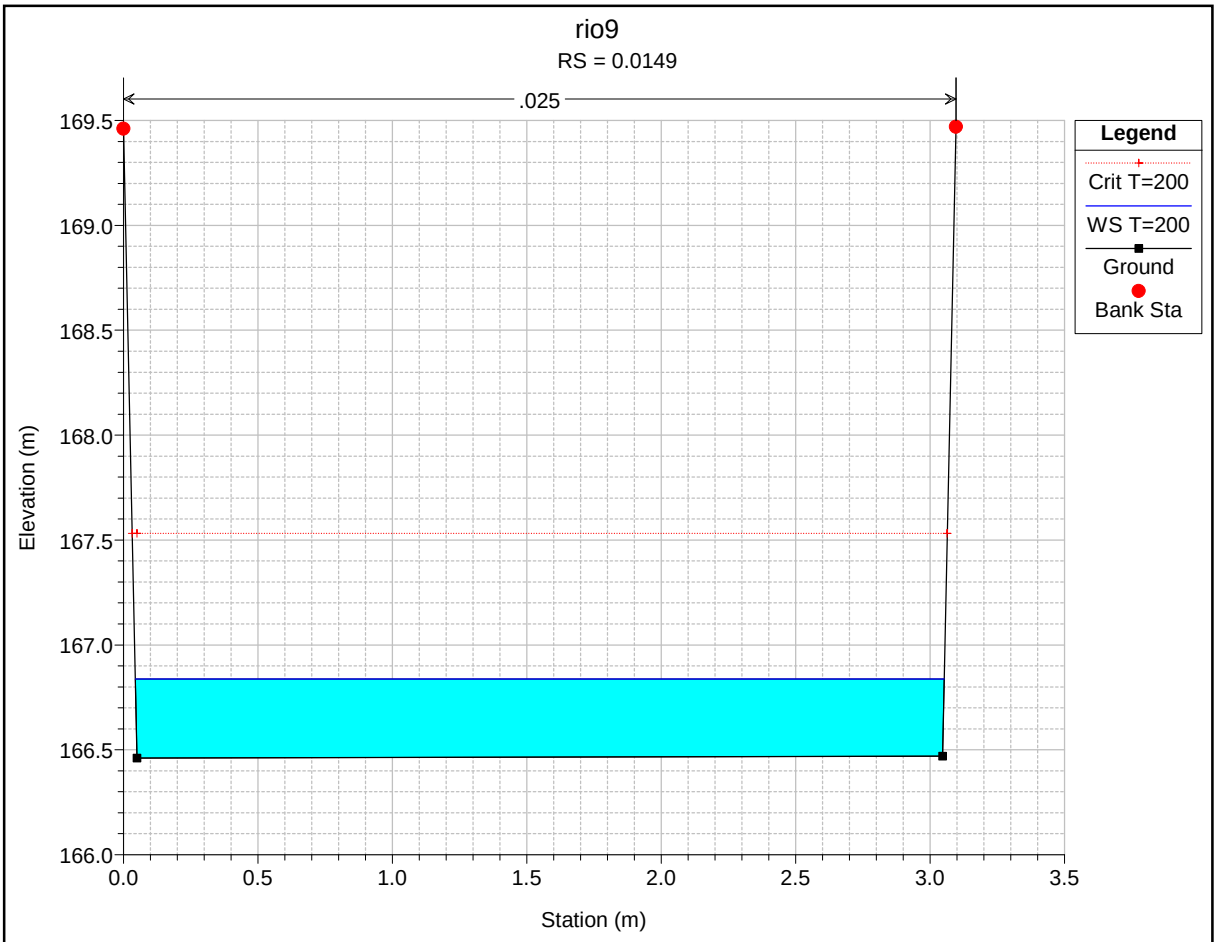
STATO di PROGETTO

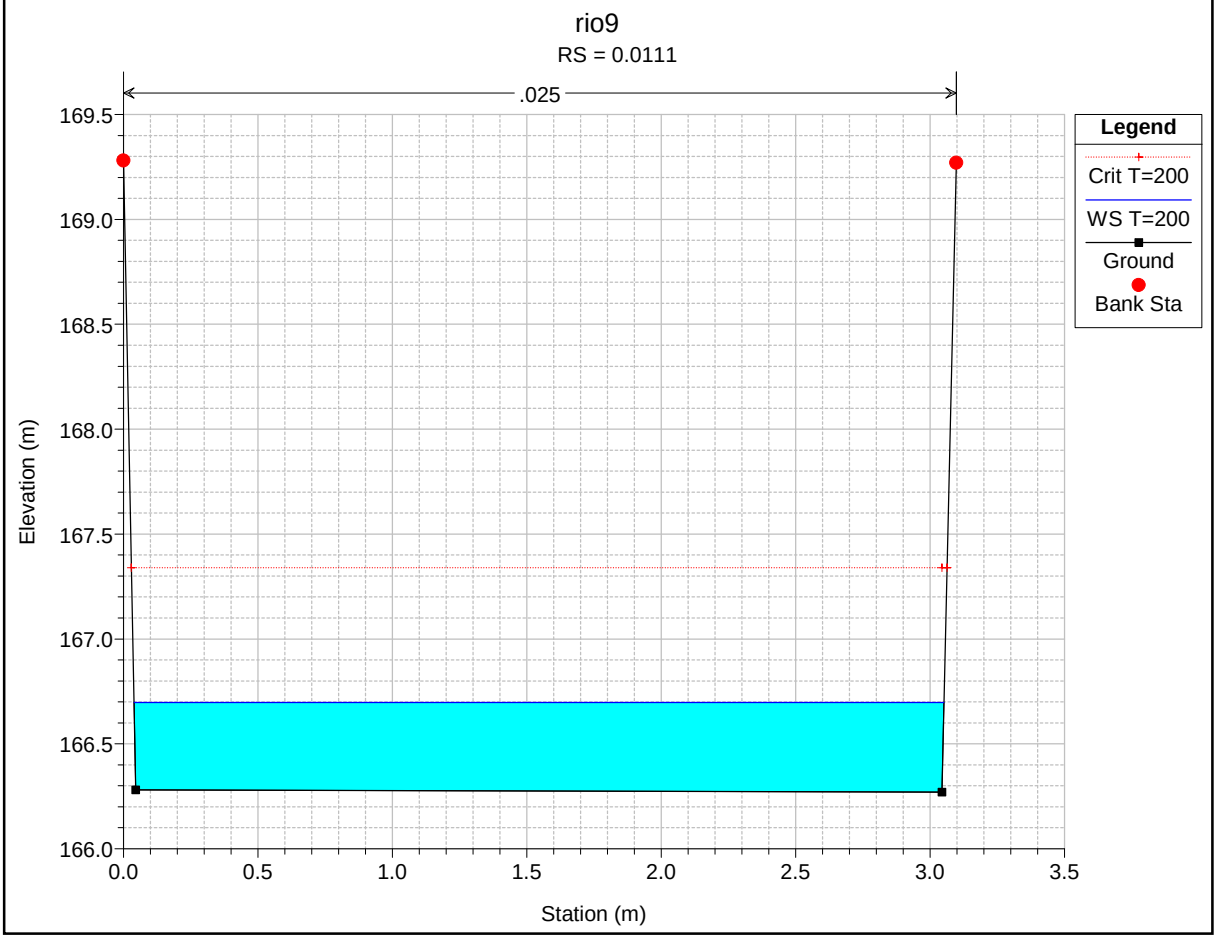

rio9
RS = 0.0228
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
174.5
174.0
173.5
173.0
172.5
172.0
171.5
171.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

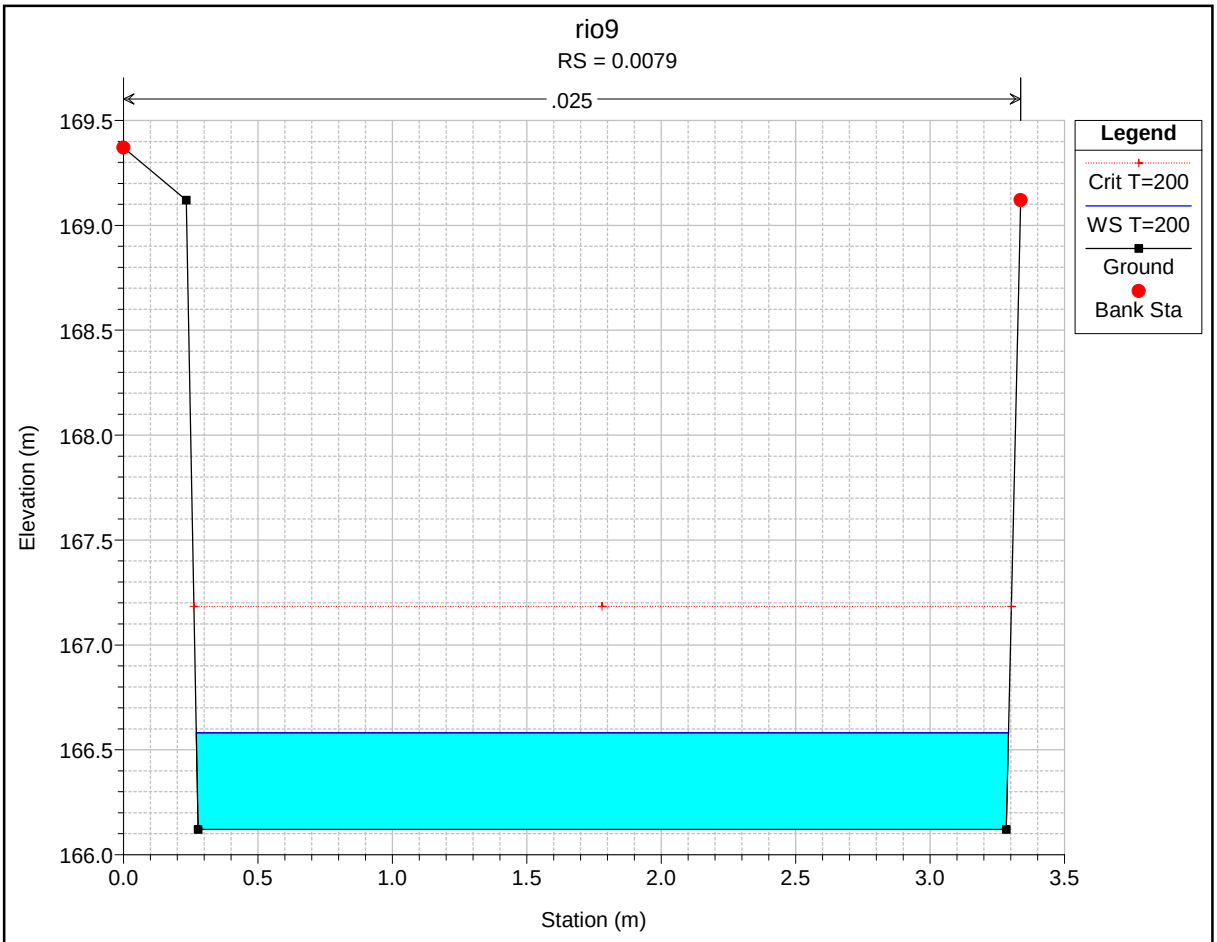

rio9
RS = 0.0226
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
171.5
171.0
170.5
170.0
169.5
169.0
168.5
168.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

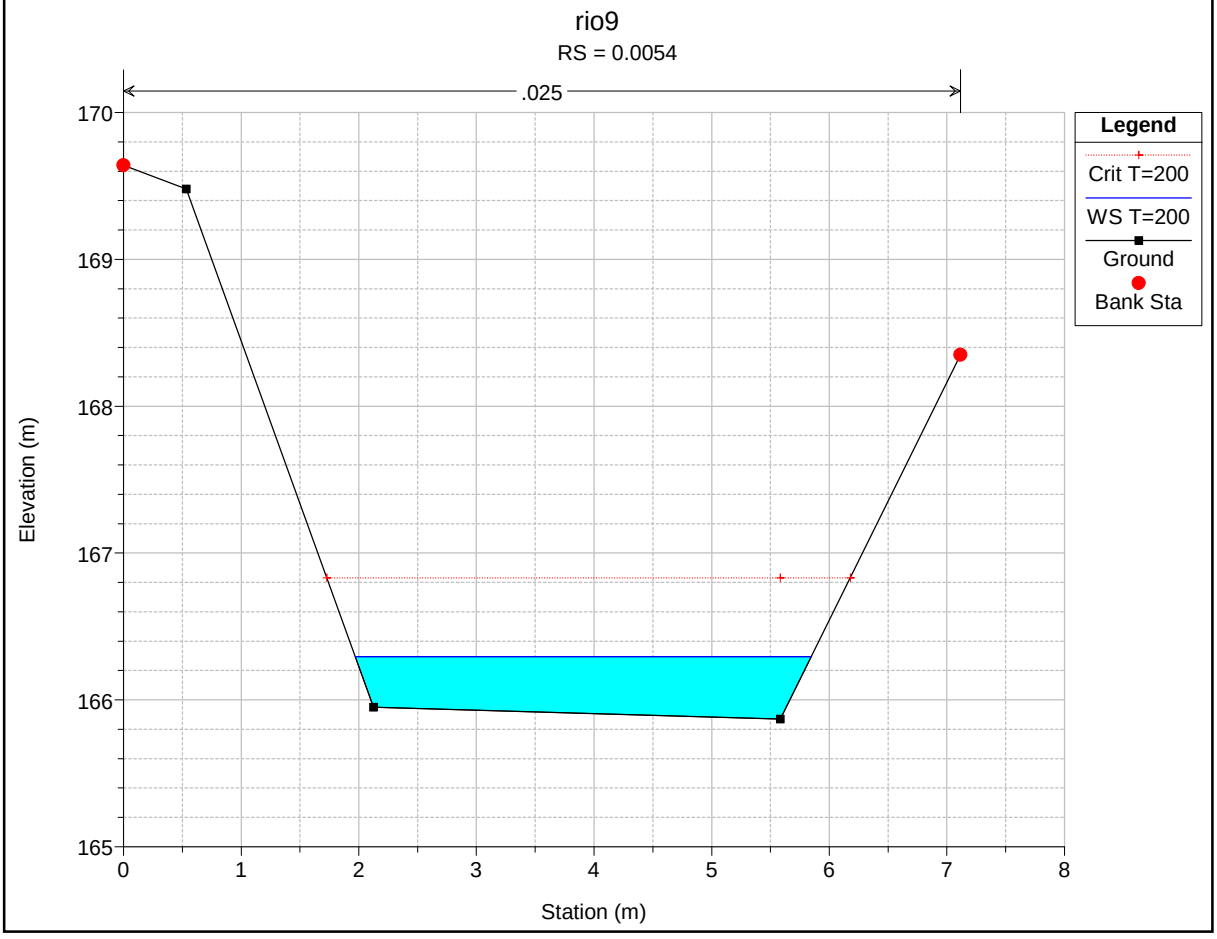

rio9
RS = 0.0197
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
171.5
171.0
170.5
170.0
169.5
169.0
168.5
168.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

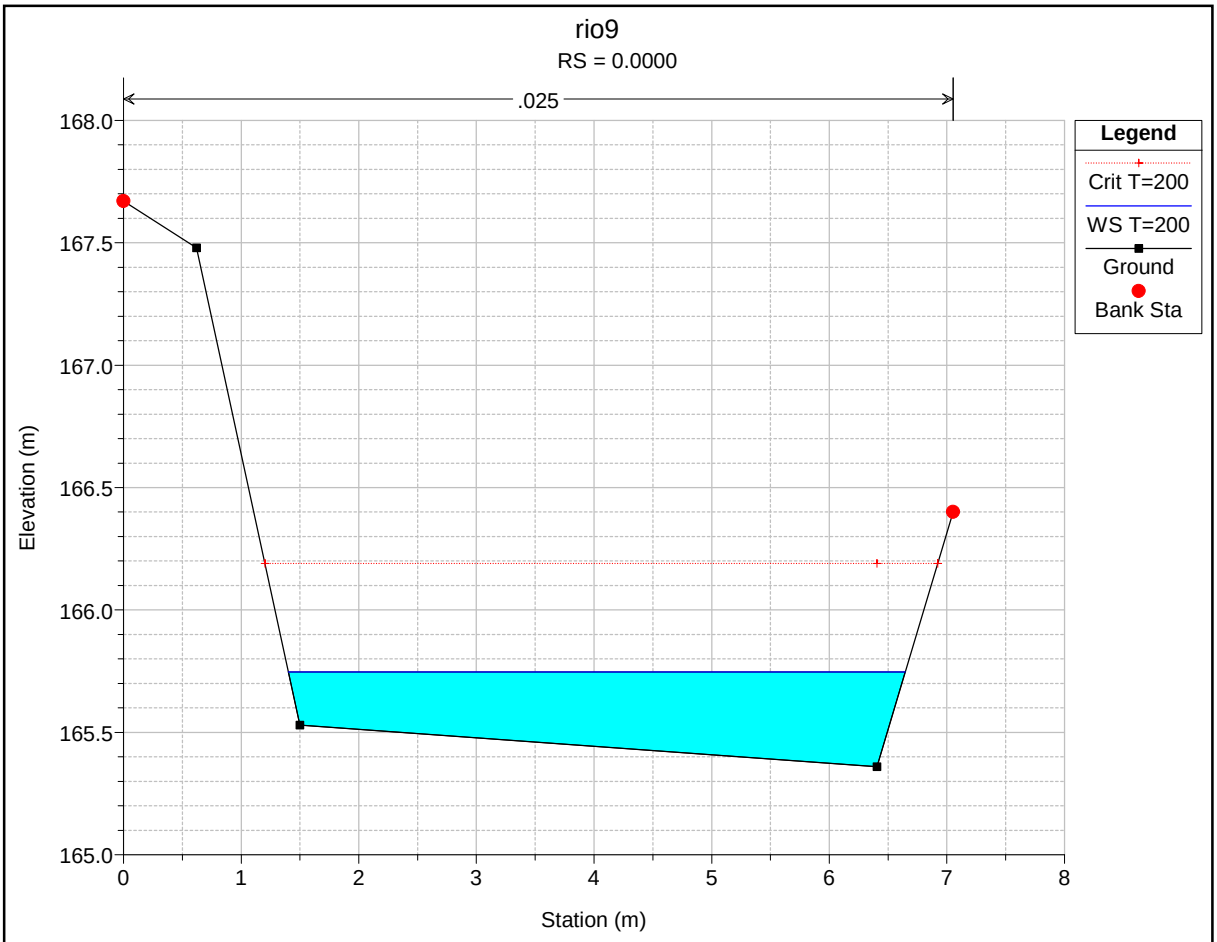

rio9
RS = 0.0195
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
170.5
170.0
169.5
169.0
168.5
168.0
167.5
167.0
166.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


rio9
RS = 0.0149
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
169.5
169.0
168.5
168.0
167.5
167.0
166.5
166.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


rio9
RS = 0.0111
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
169.5
169.0
168.5
168.0
167.5
167.0
166.5
166.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


rio9
RS = 0.0079
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
169.5
169.0
168.5
168.0
167.5
167.0
166.5
166.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


rio9
RS = 0.0054
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
170
169
168
167
166
165
0
1
2
3
4
5
6
7
8


rio9
RS = 0.0000
.025
168.0
167.5
167.0
166.5
166.0
165.5
165.0
Elevation (m)
0
1
2
3
4
5
6
7
8
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

rio9

rio9 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

176

174

172

170

168

166

164

0.0054

0.0079

0.0111

0.0149

0.0195

0.0226

0

5

10

15

20

25

Main Channel Distance (m)

HEC-RAS Plan: Plan 01 River: rio9 Reach: Reach 1 Profile: T=200

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.0228	T=200	10.40	171.37	171.76	172.44	8.96	2.60	174.36	2.60	174.36	4.10	4.59
Reach 1	0.0226	T=200	10.40	168.35	168.65	169.42	11.61	2.70	171.35	2.70	171.35	6.87	6.79
Reach 1	0.0197	T=200	10.40	168.20	168.54	169.27	10.12	2.66	171.20	2.66	171.20	5.22	5.52
Reach 1	0.0195	T=200	10.40	166.70	167.00	167.77	11.35	2.70	169.70	3.24	170.24	6.56	6.57
Reach 1	0.0149	T=200	10.40	166.46	166.84	167.53	9.30	2.62	169.46	2.63	169.47	4.41	4.87
Reach 1	0.0111	T=200	10.40	166.27	166.70	167.34	8.19	2.58	169.28	2.57	169.27	3.42	4.03
Reach 1	0.0079	T=200	10.40	166.12	166.58	167.18	7.49	2.79	169.37	2.54	169.12	2.86	3.53
Reach 1	0.0054	T=200	10.40	165.87	166.30	166.83	7.35	3.35	169.64	2.05	168.35	2.75	3.89
Reach 1	0.0000	T=200	10.40	165.36	165.75	166.19	6.77	1.92	167.67	0.65	166.40	2.33	3.99

VERIFICA IDRAULICA

RIO 6 - Tratto di valle

FASE DI COLTIVAZIONE

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

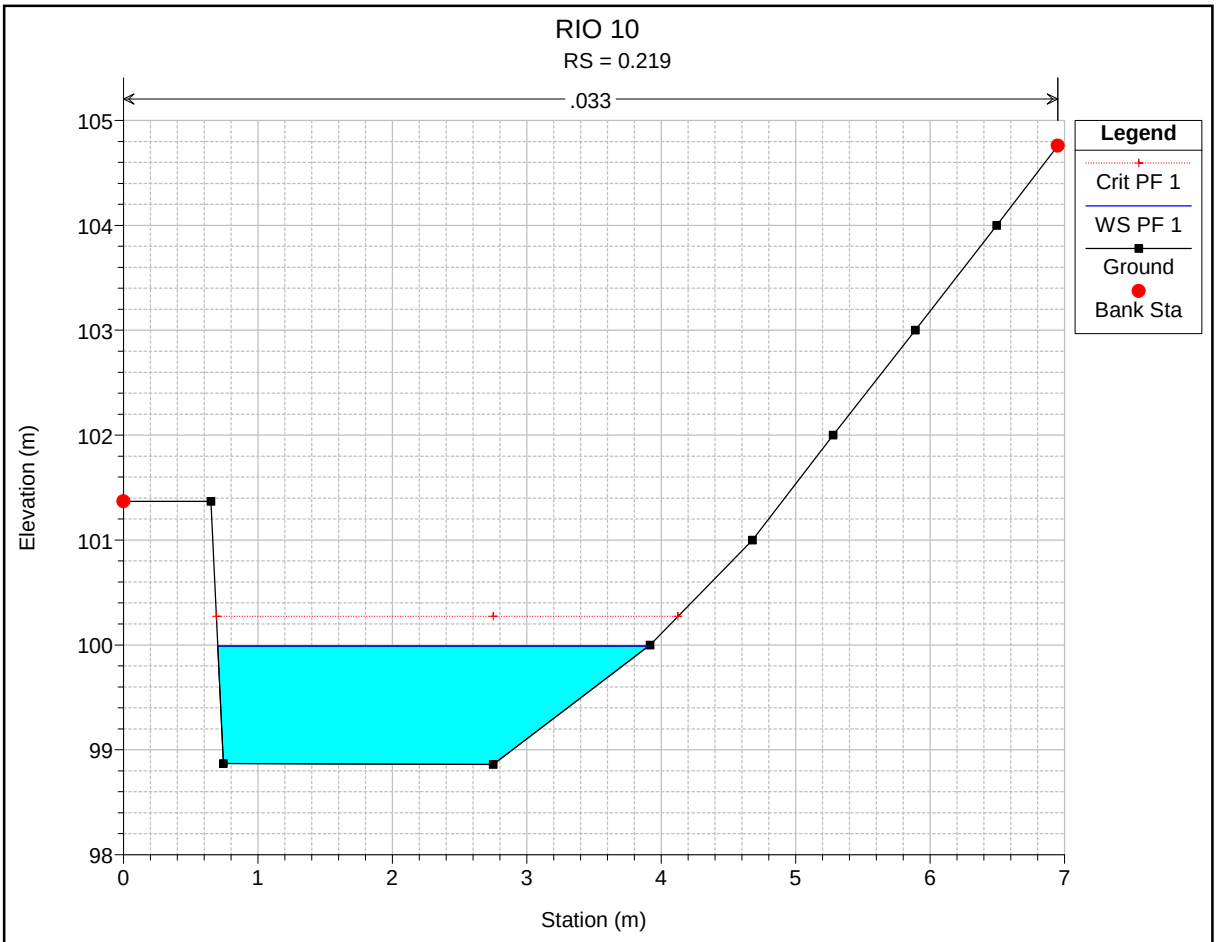
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

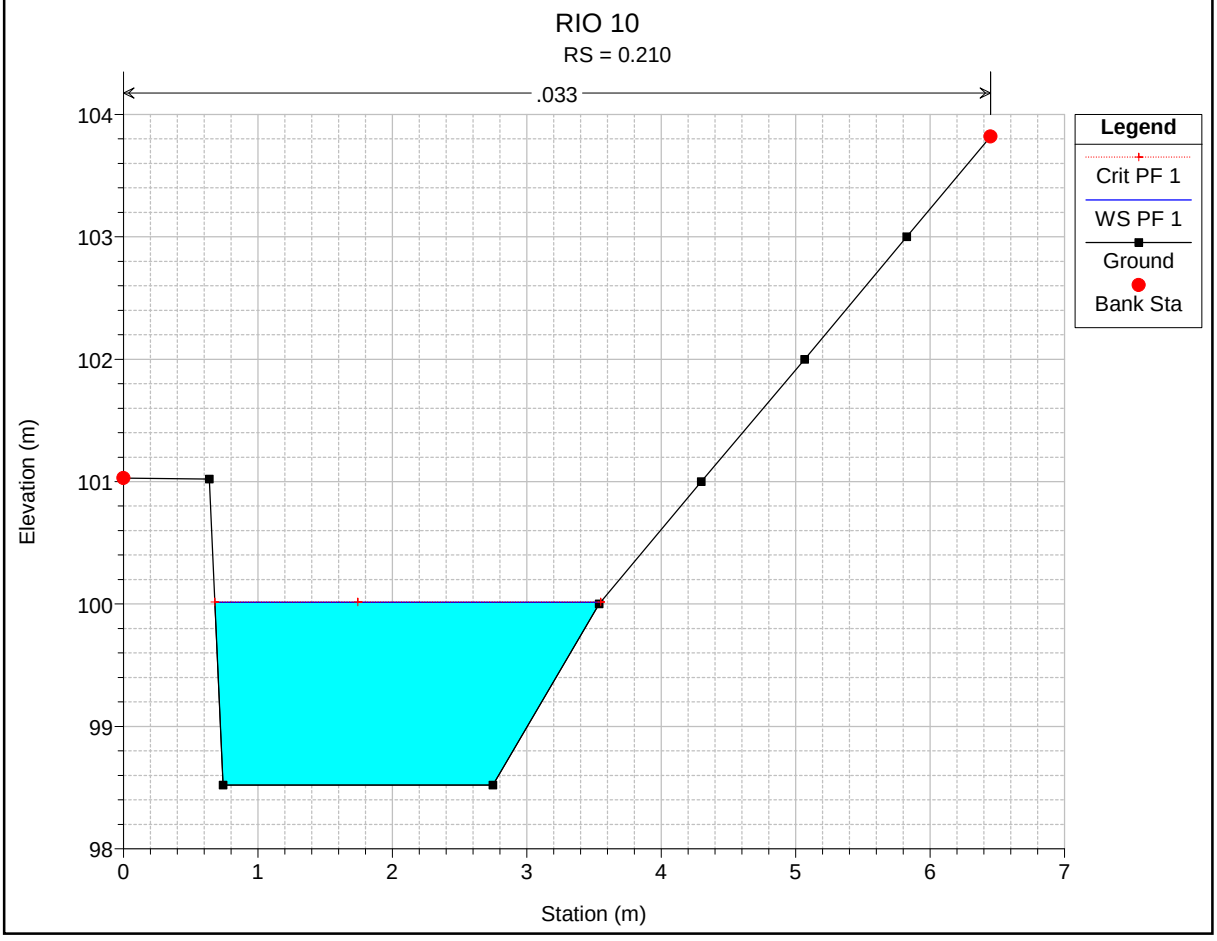
Vel Chnl = Velocità della corrente nel canale.

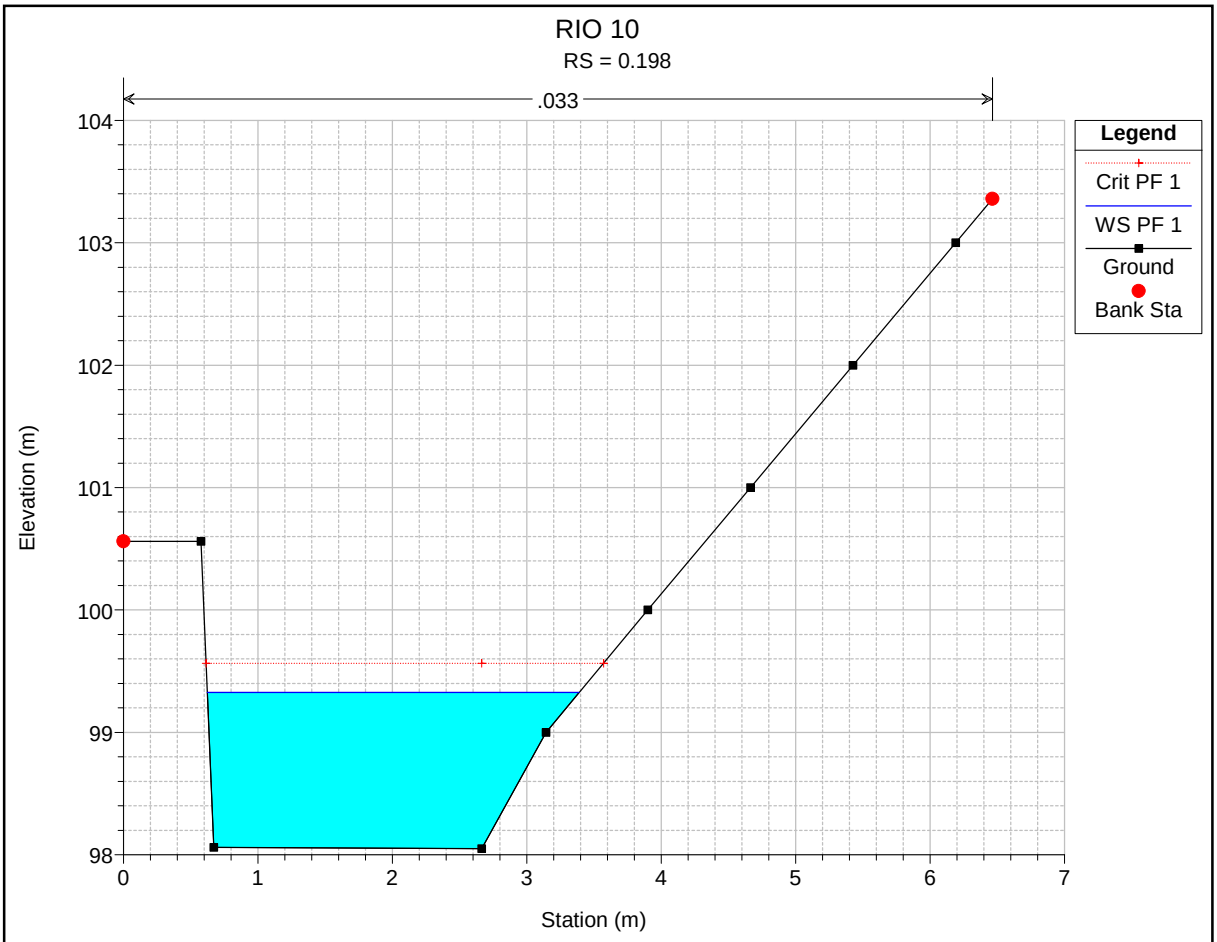
Froude = n° di froude della corrente.

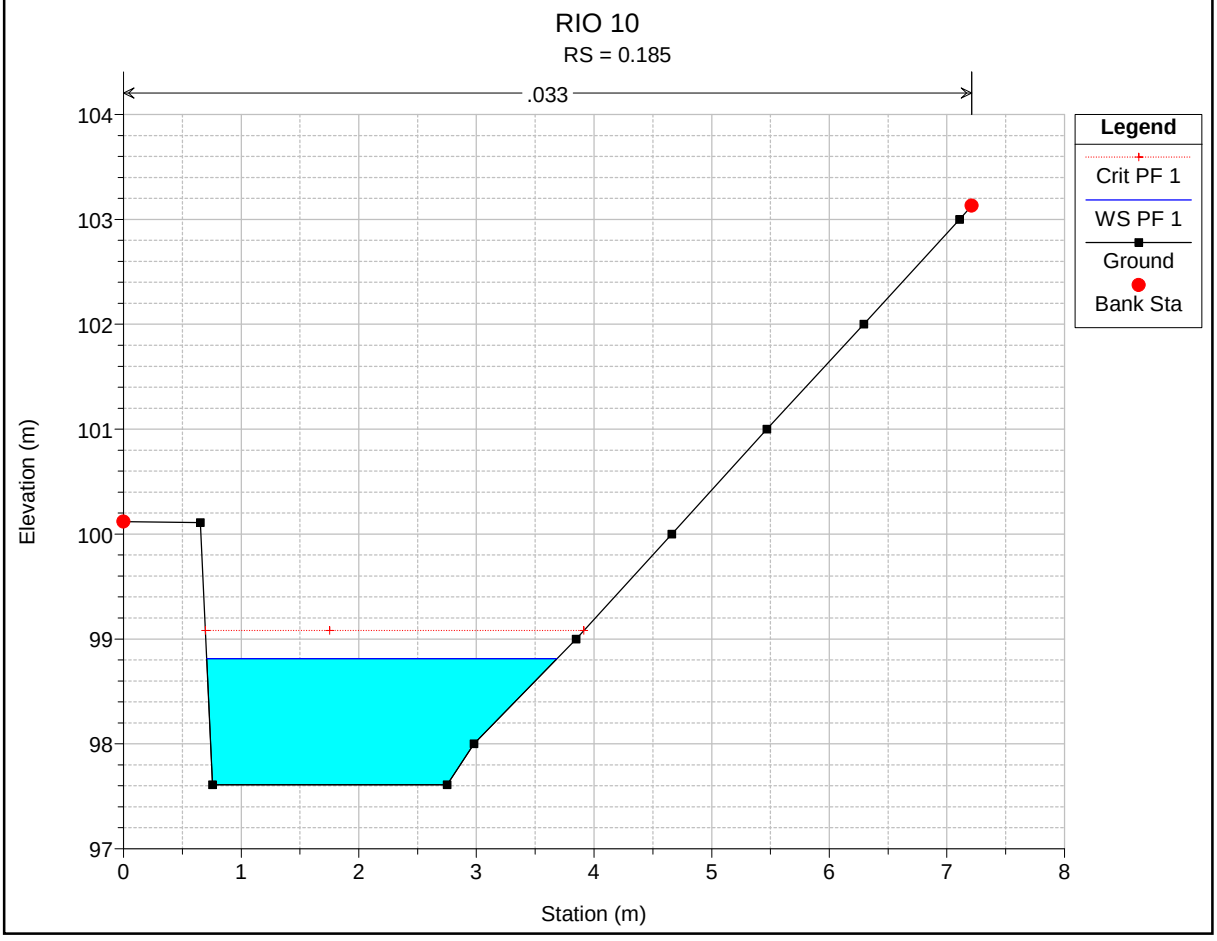
Vel. Head = $U^2/2g$.

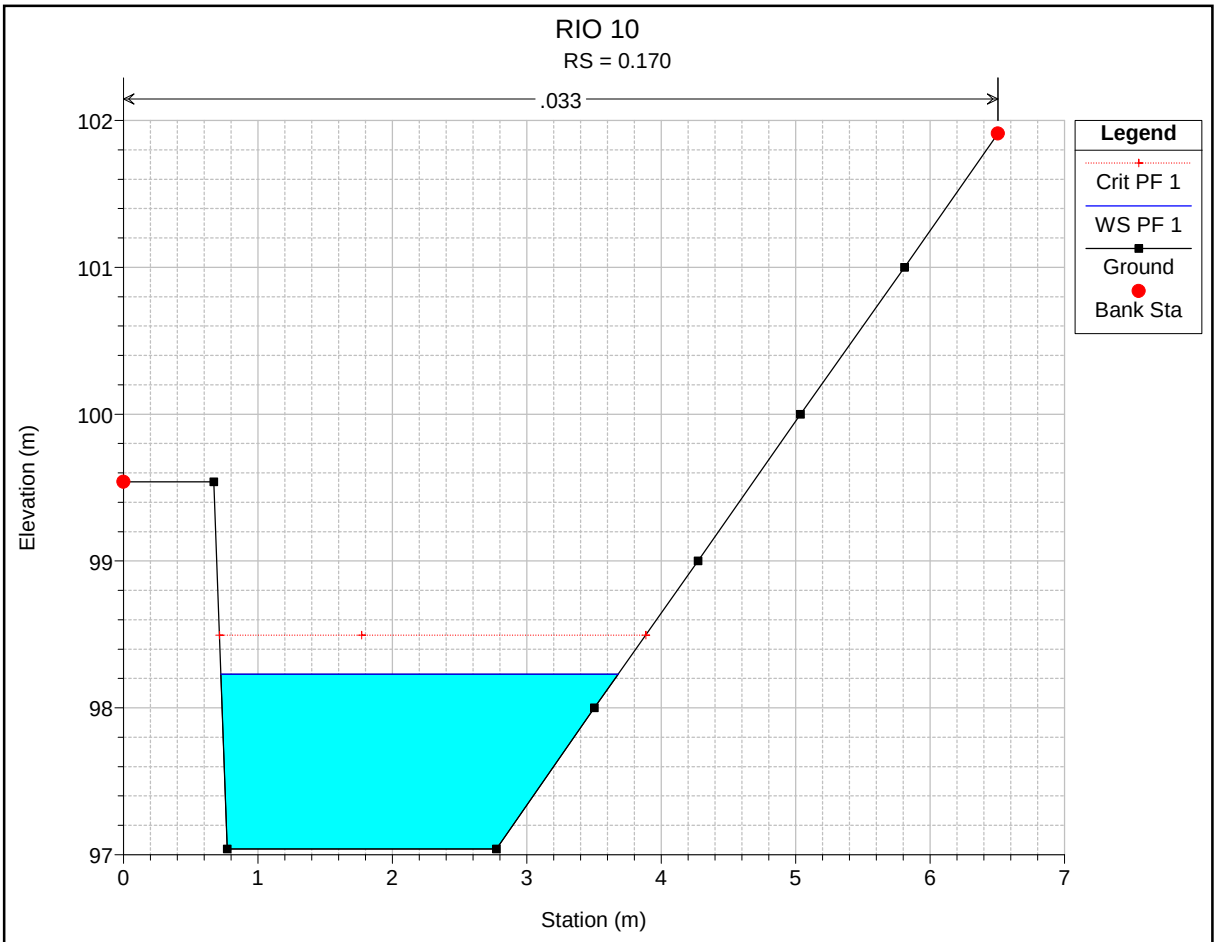
STATO di PROGETTO

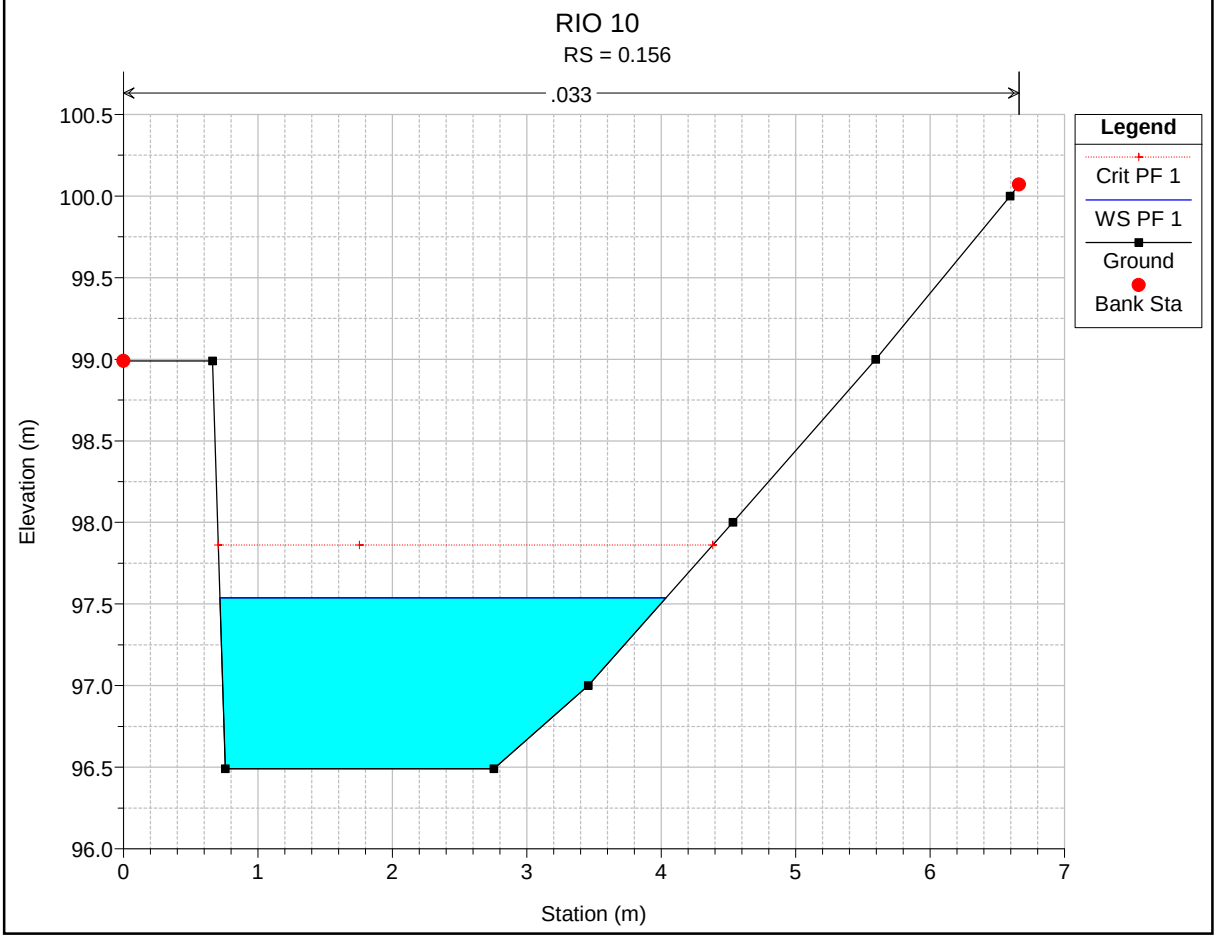

RIO 10
RS = 0.219
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
105
104
103
102
101
100
99
98
0
1
2
3
4
5
6
7

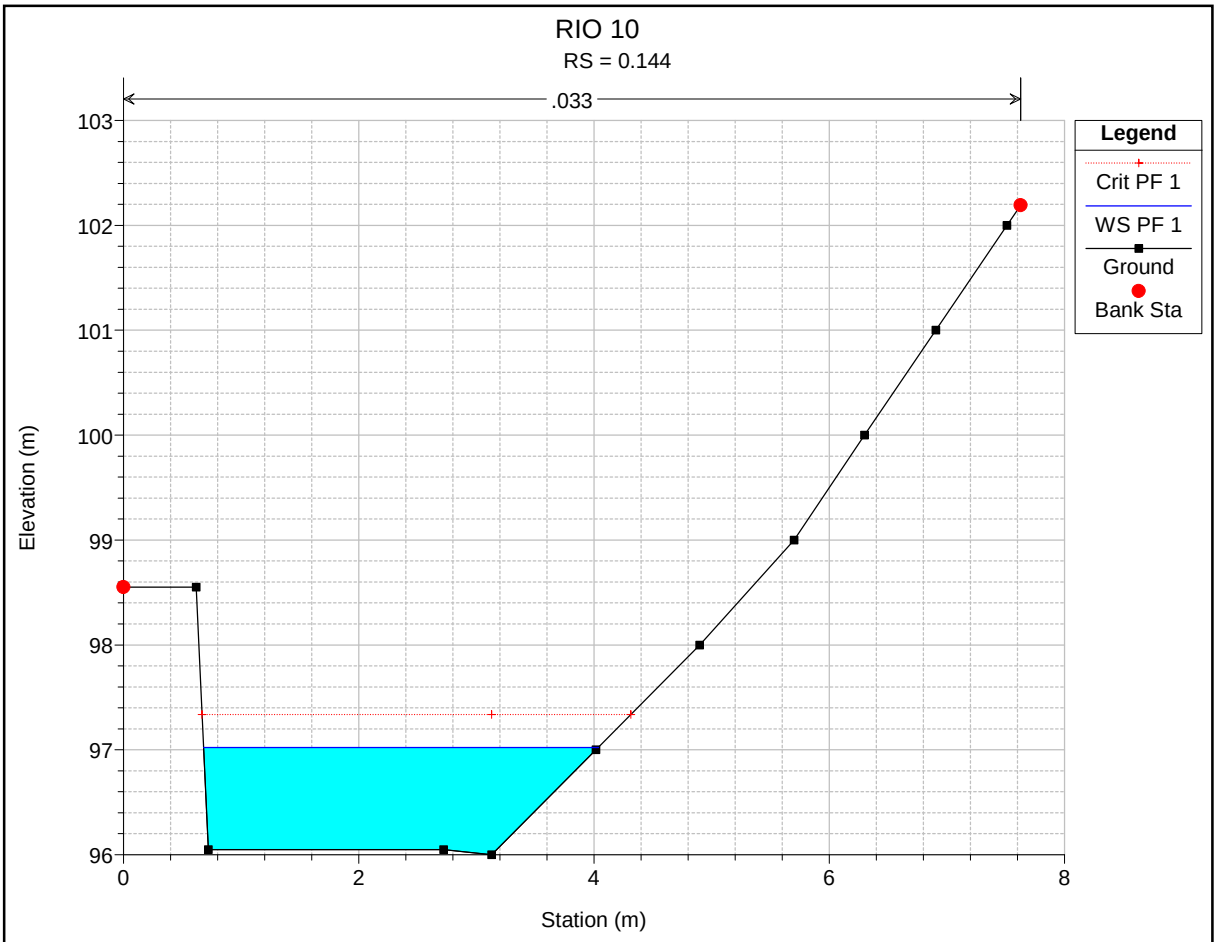

RIO 10
RS = 0.210
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
104
103
102
101
100
99
98
0
1
2
3
4
5
6
7

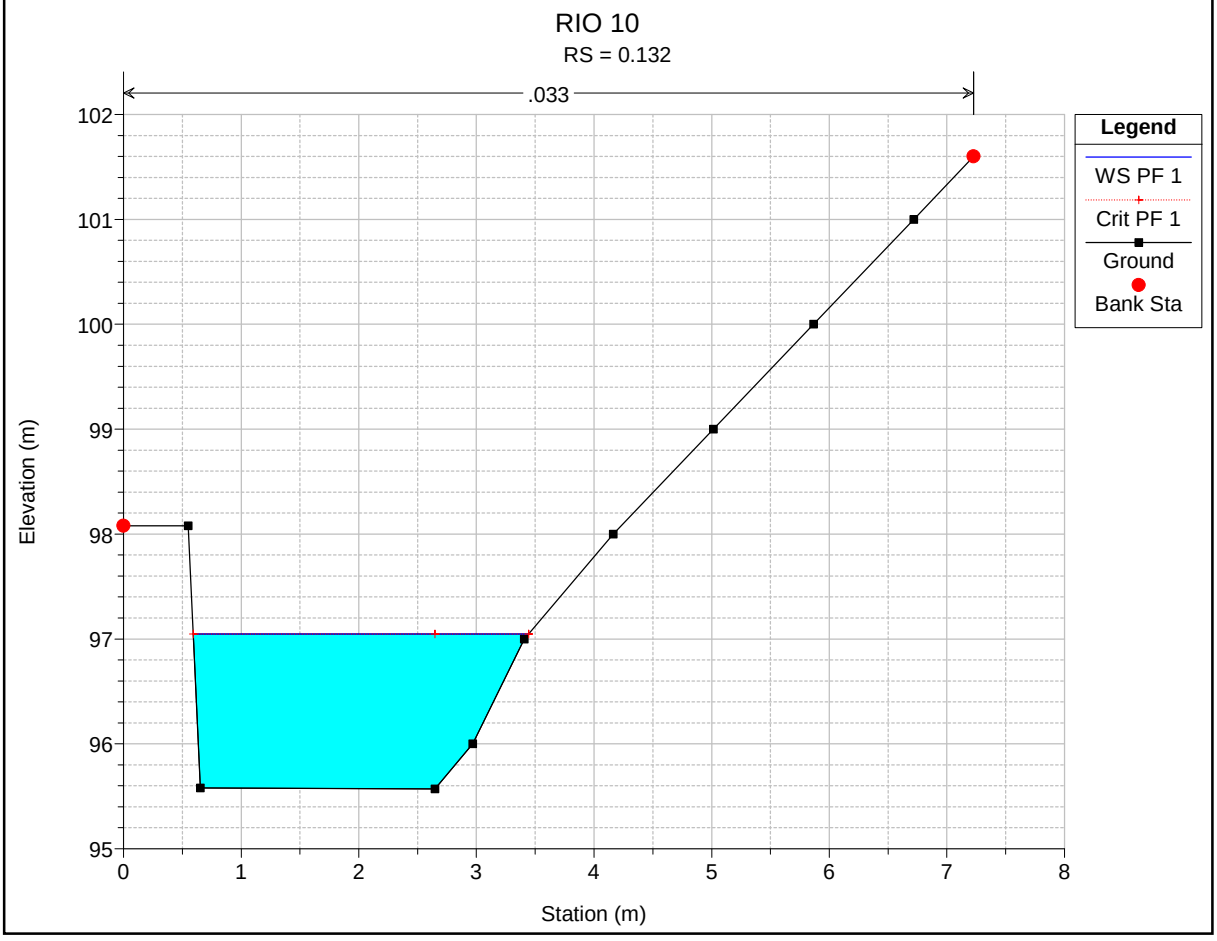

RIO 10
RS = 0.198
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
104
103
102
101
100
99
98
0
1
2
3
4
5
6
7

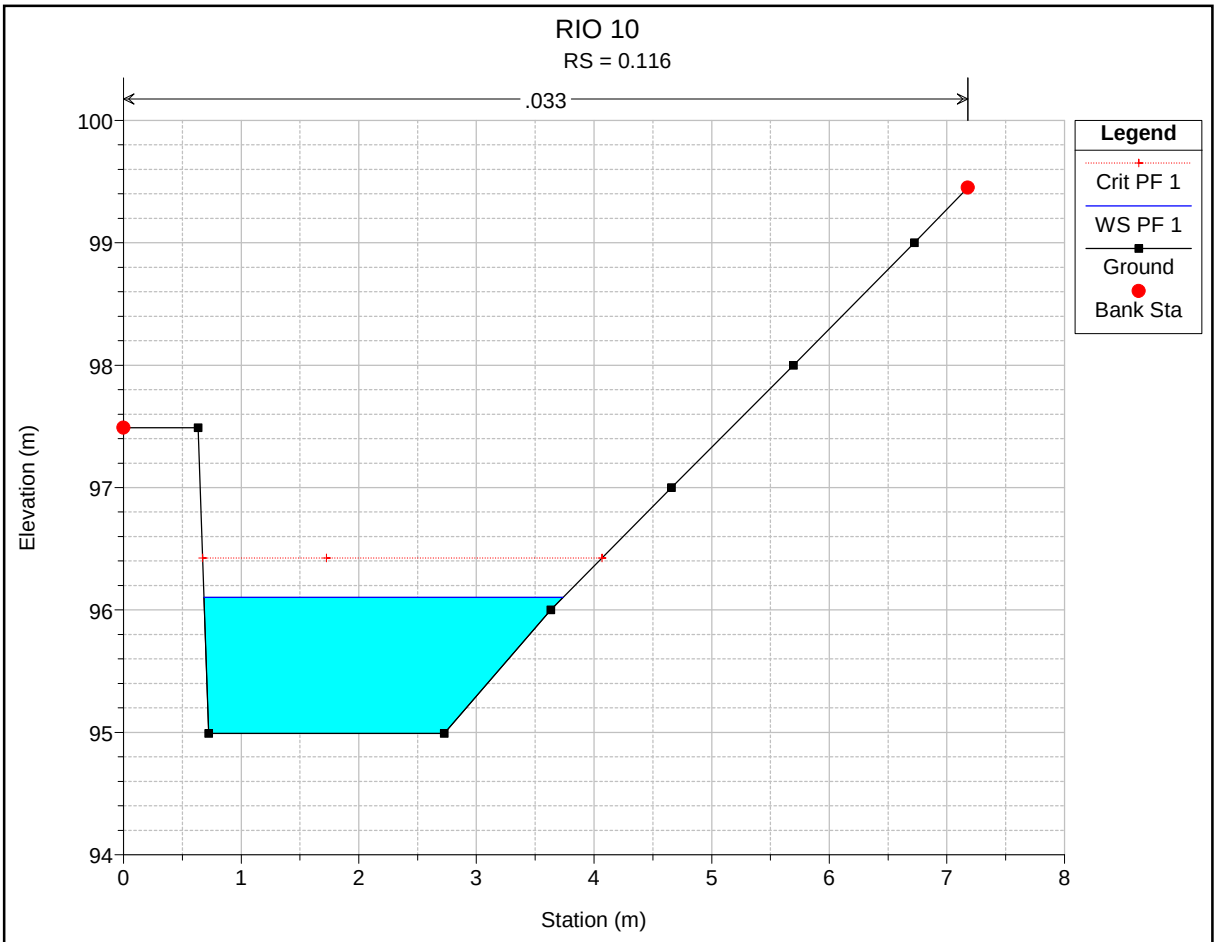

RIO 10
RS = 0.185
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
104
103
102
101
100
99
98
97
0
1
2
3
4
5
6
7
8

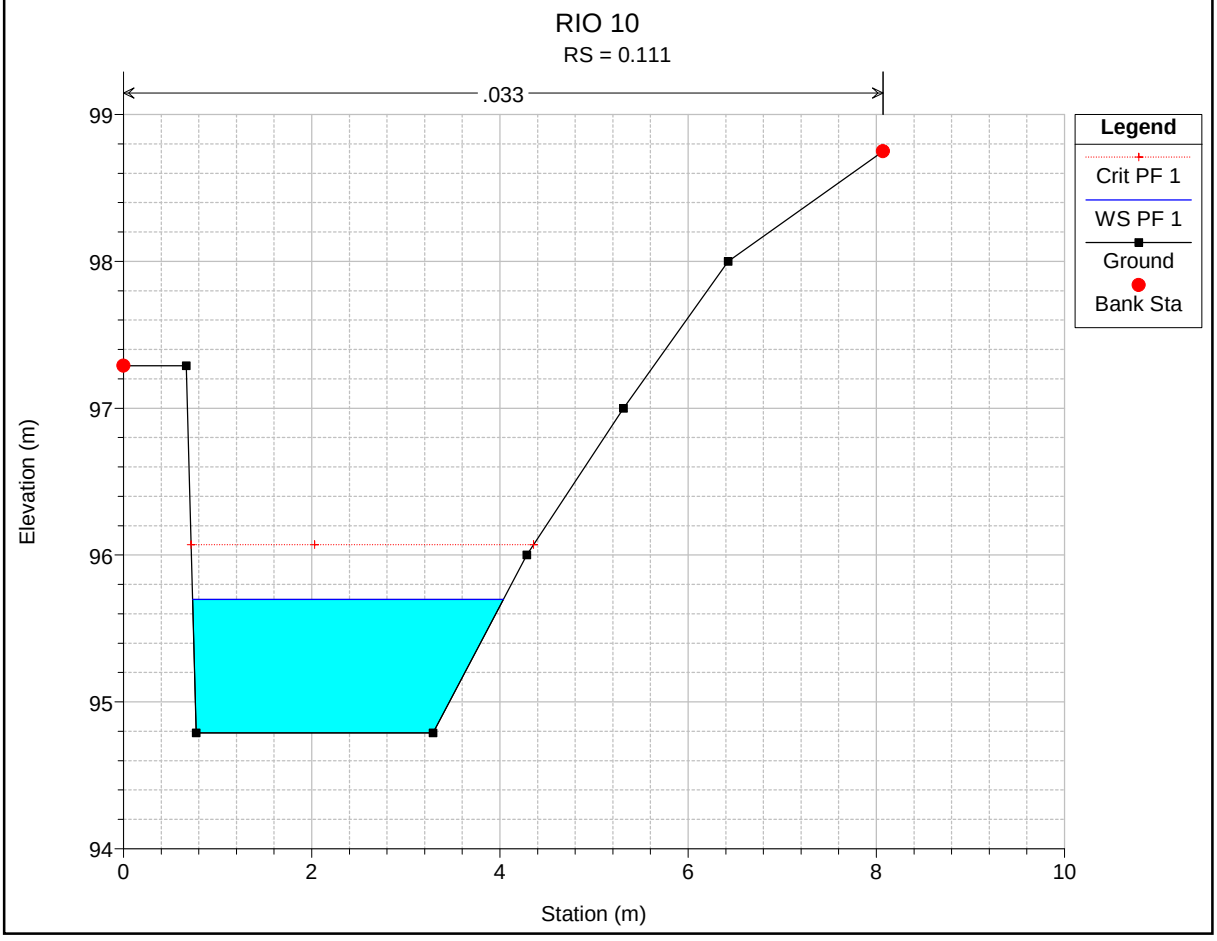

RIO 10
RS = 0.170
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
102
101
100
99
98
97
0
1
2
3
4
5
6
7

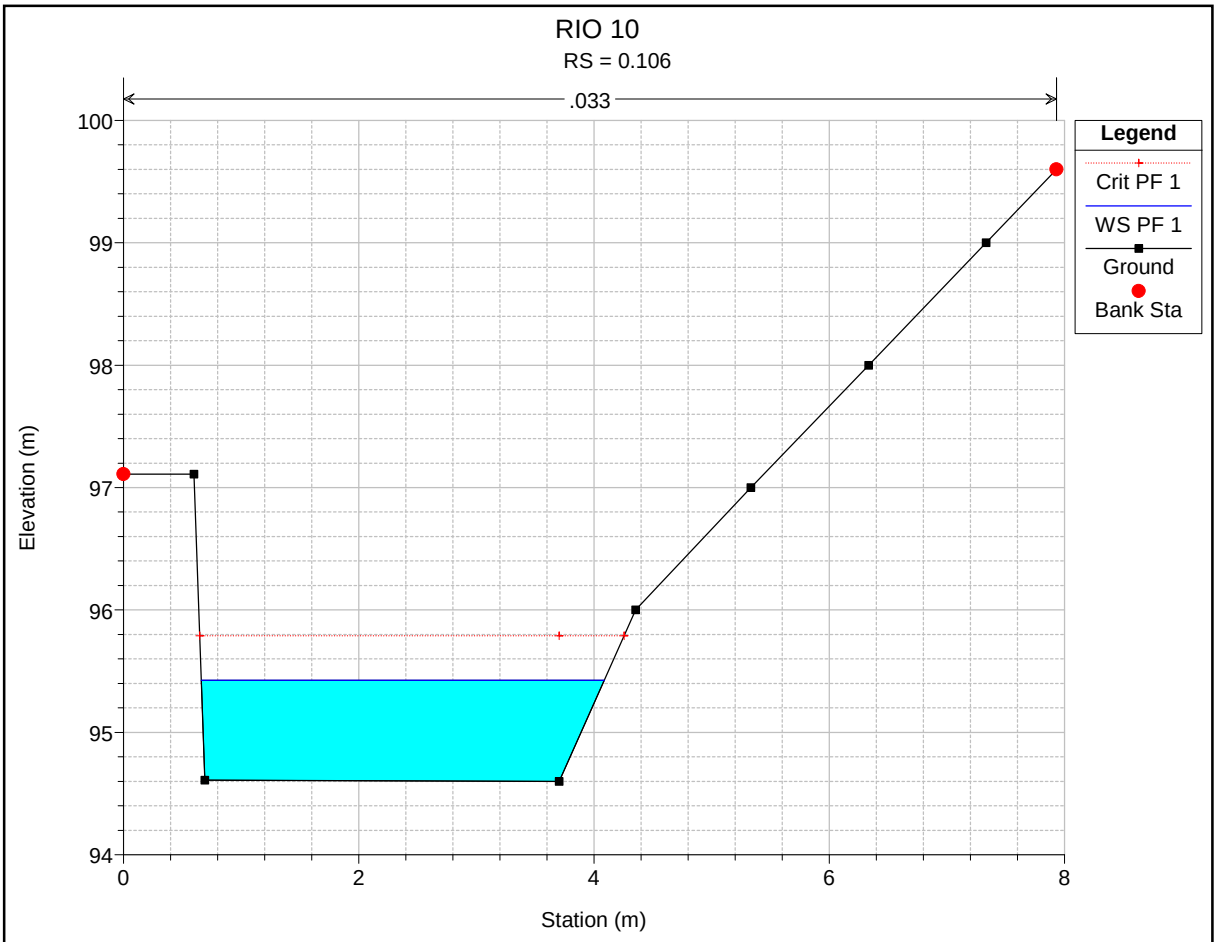

RIO 10
RS = 0.156
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
100.5
100.0
99.5
99.0
98.5
98.0
97.5
97.0
96.5
96.0
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1
2
3
4
5
6
7

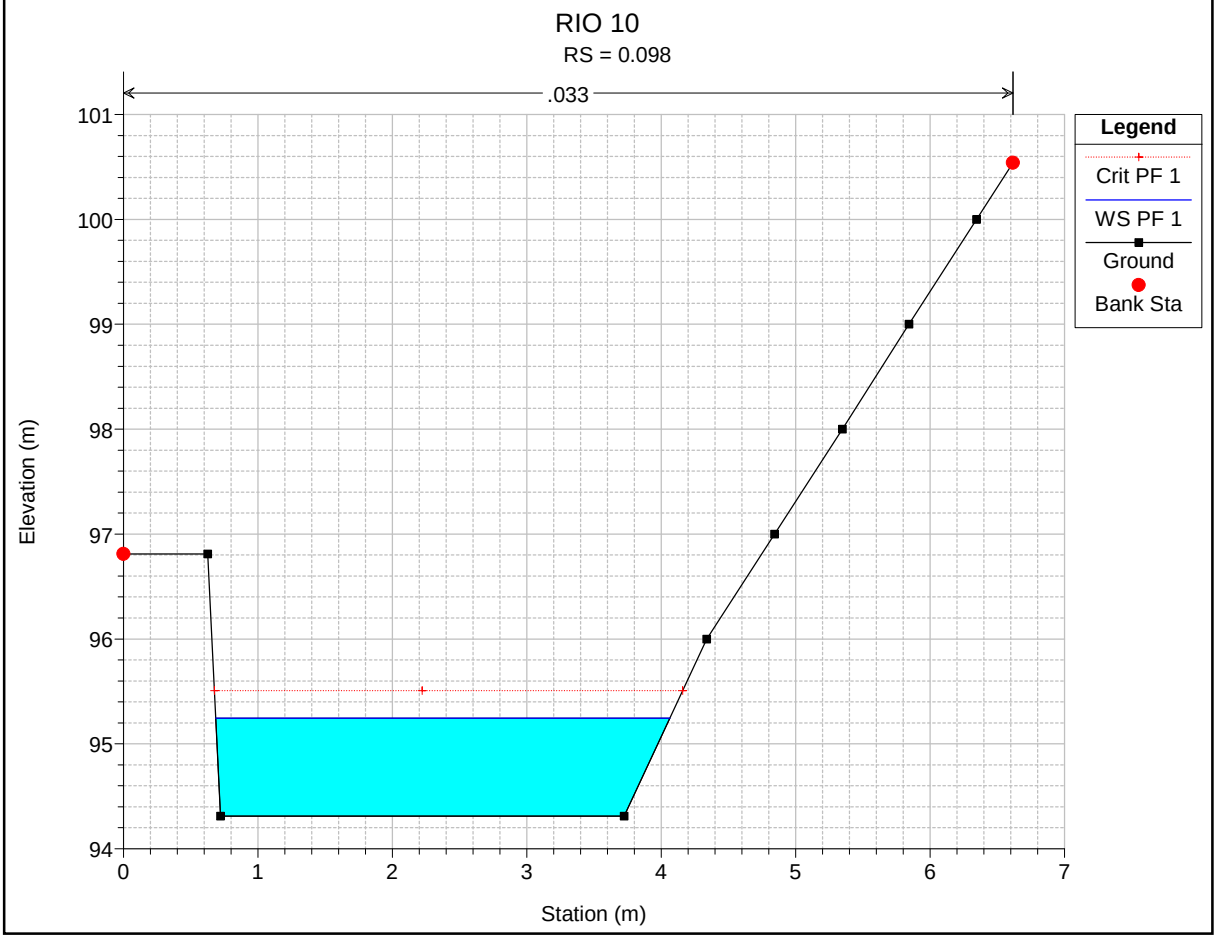

RIO 10
RS = 0.144
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
103
102
101
100
99
98
97
96
0
2
4
6
8

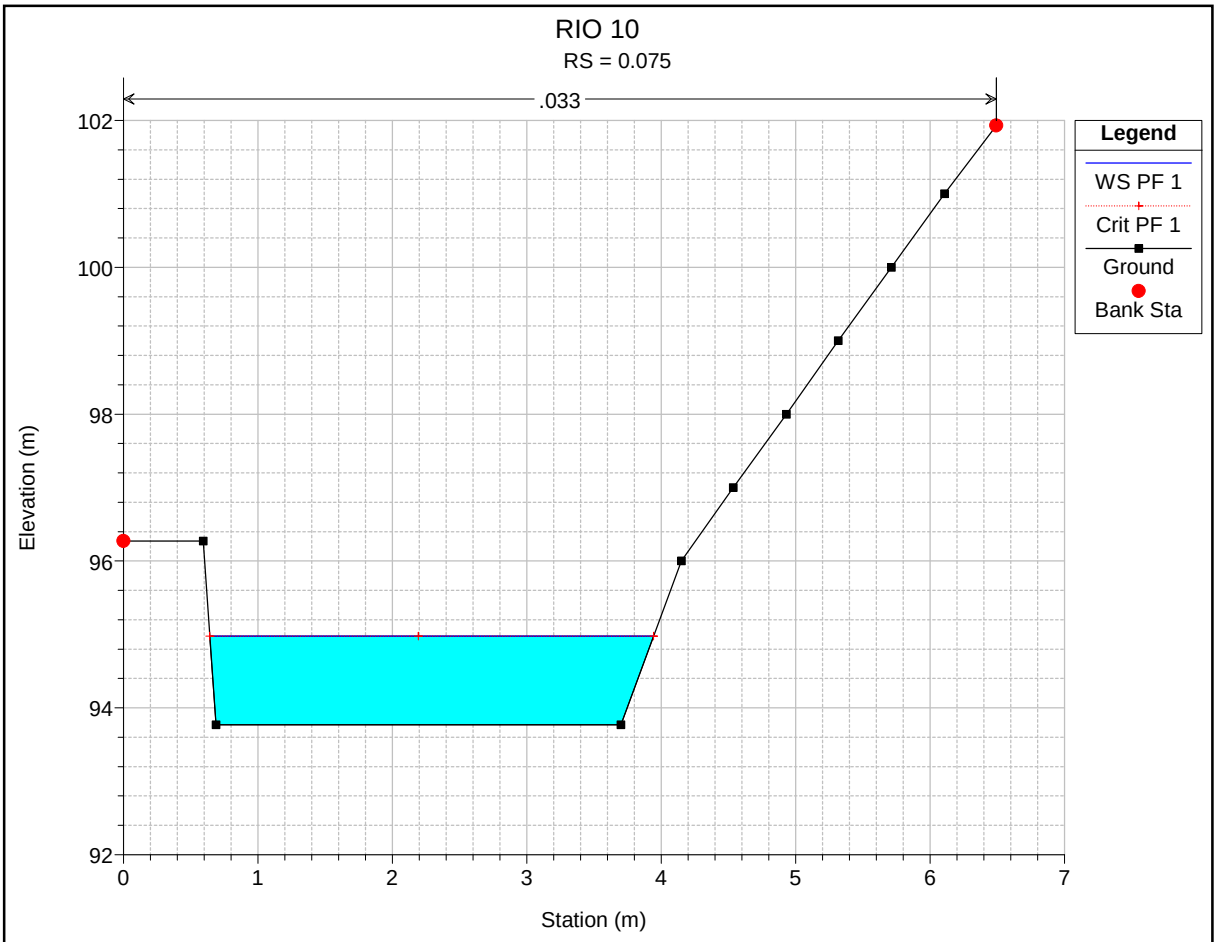

RIO 10
RS = 0.132
.033
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
102
101
100
99
98
97
96
95
0
1
2
3
4
5
6
7
8

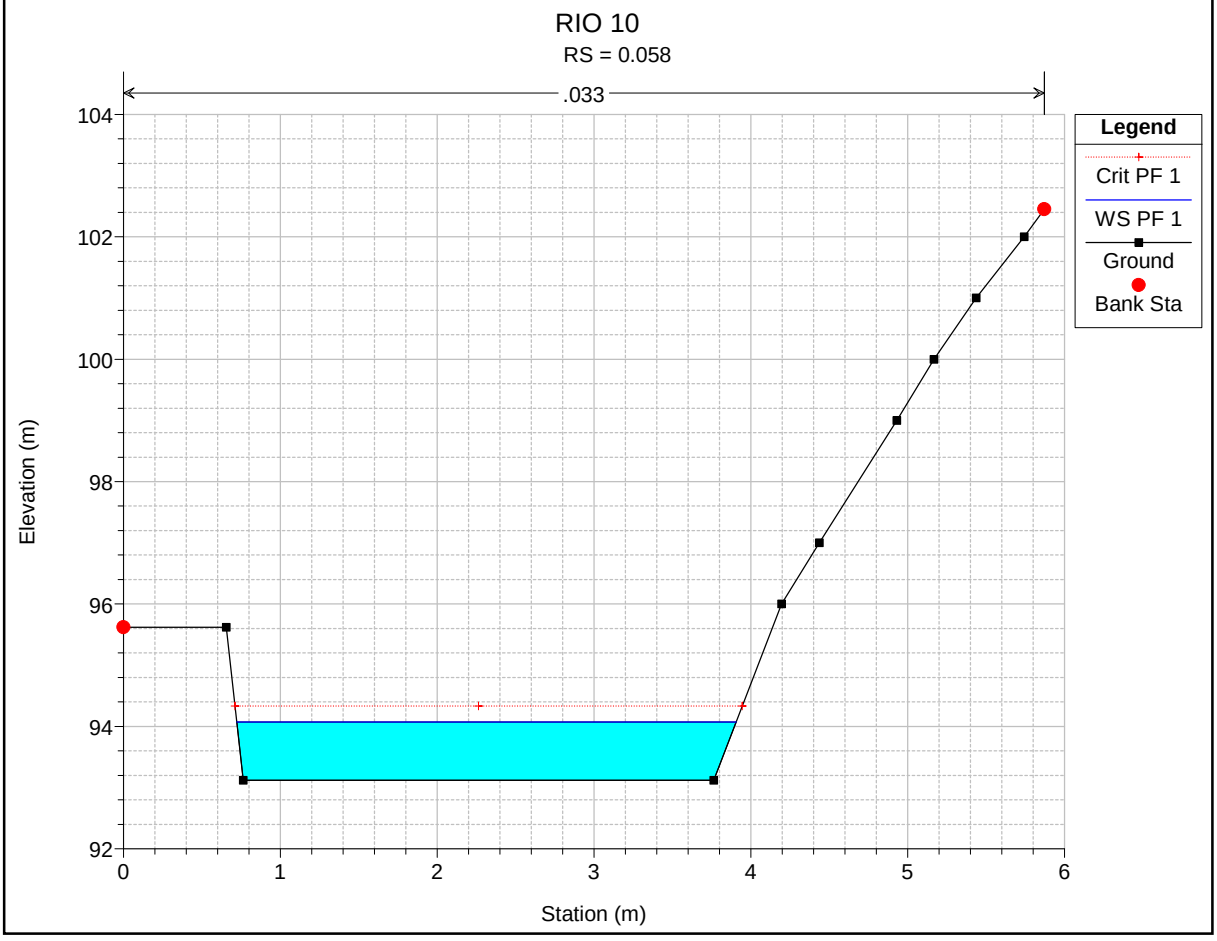

RIO 10
RS = 0.116
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
100
99
98
97
96
95
94
0
1
2
3
4
5
6
7
8

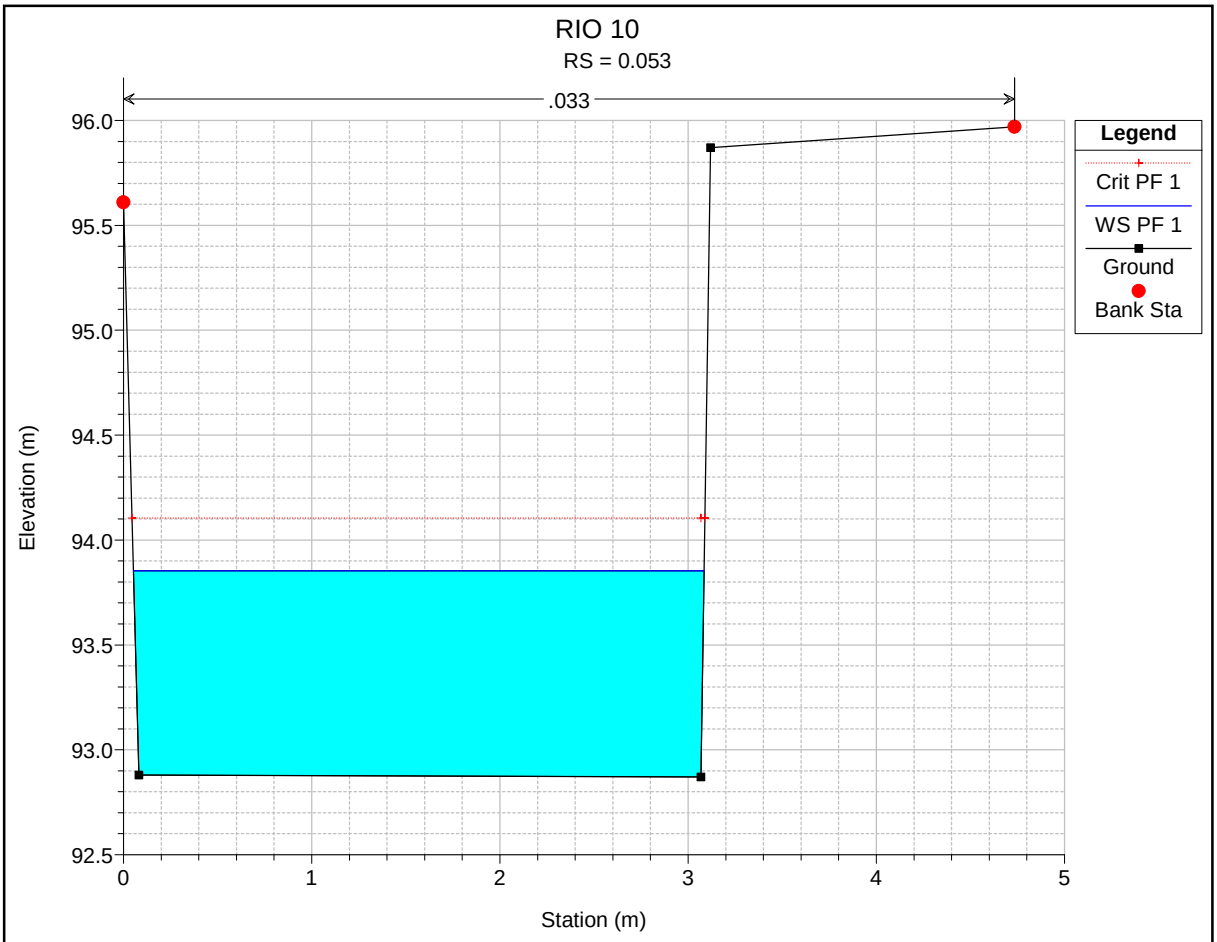

RIO 10
RS = 0.111
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
99
98
97
96
95
94
0
2
4
6
8
10

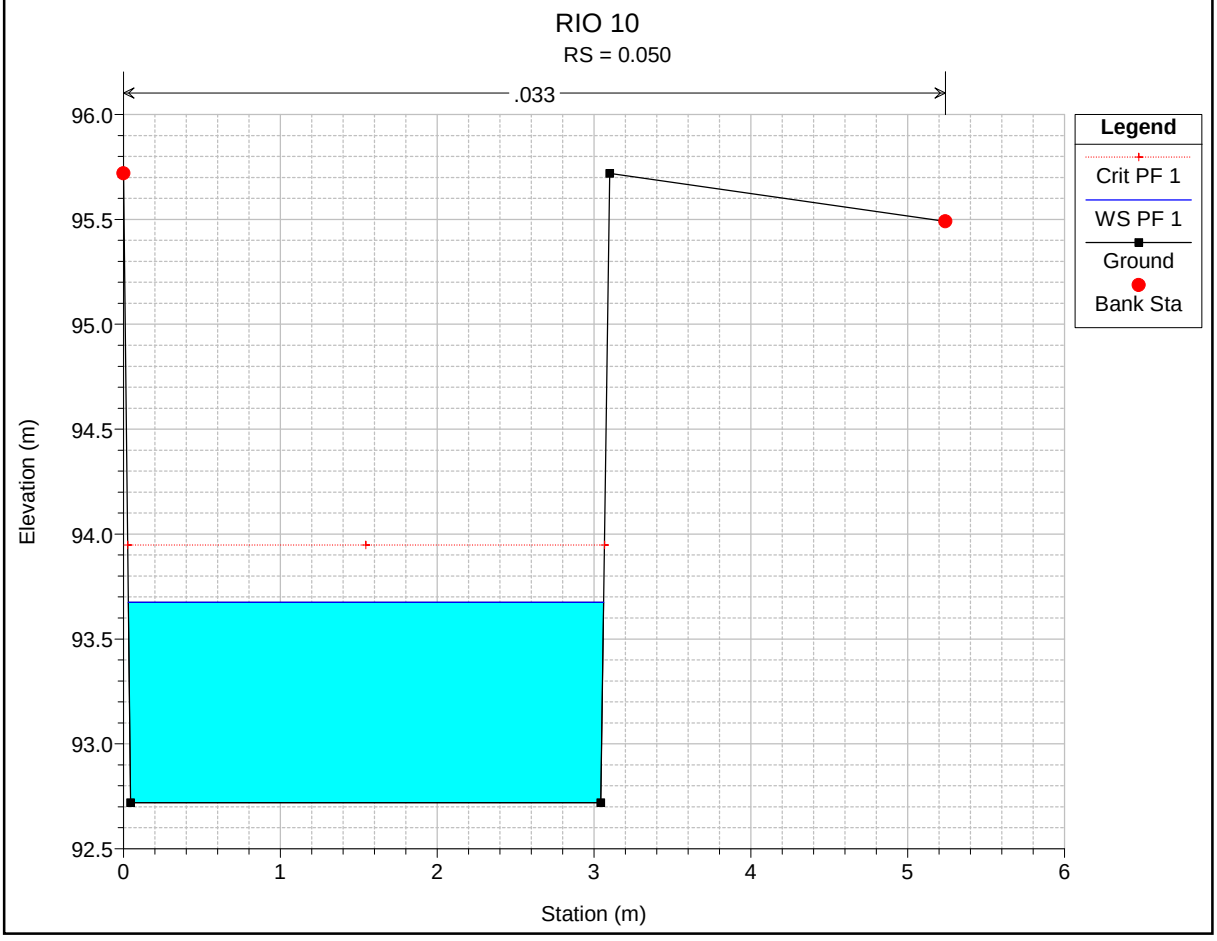

RIO 10
RS = 0.106
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
100
99
98
97
96
95
94
0
2
4
6
8

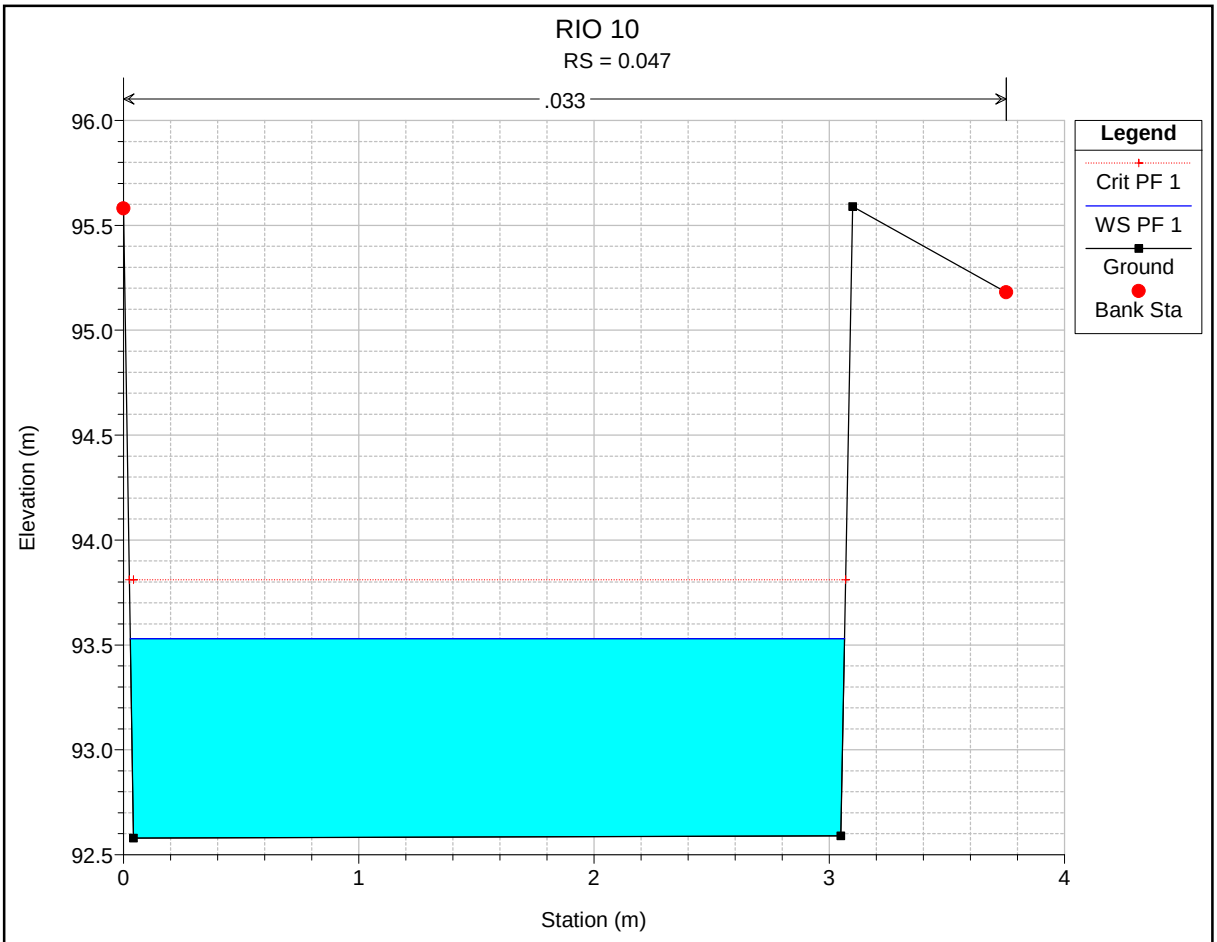

RIO 10
RS = 0.098
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
101
100
99
98
97
96
95
94
0
1
2
3
4
5
6
7

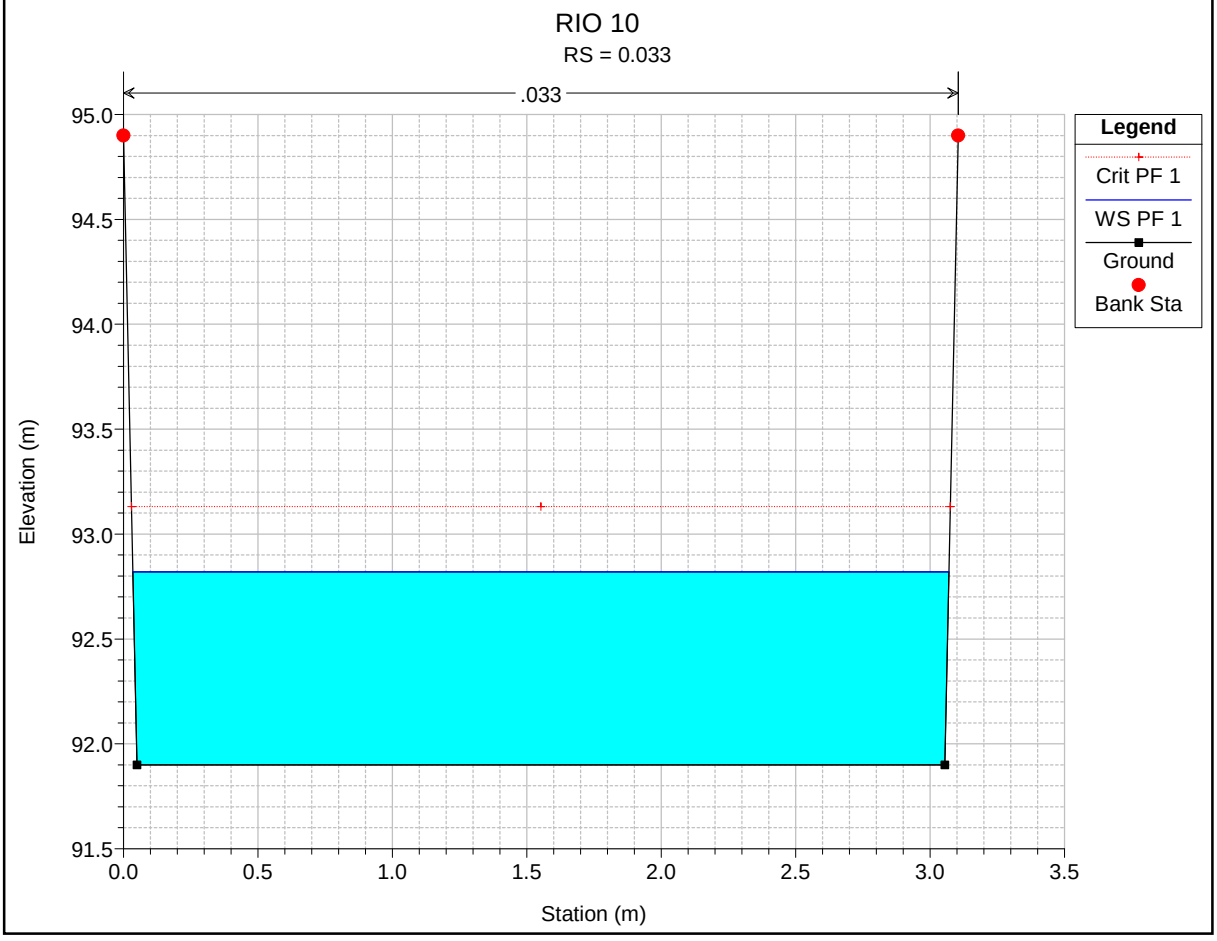

RIO 10
RS = 0.075
.033
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
102
100
98
96
94
92
0
1
2
3
4
5
6
7

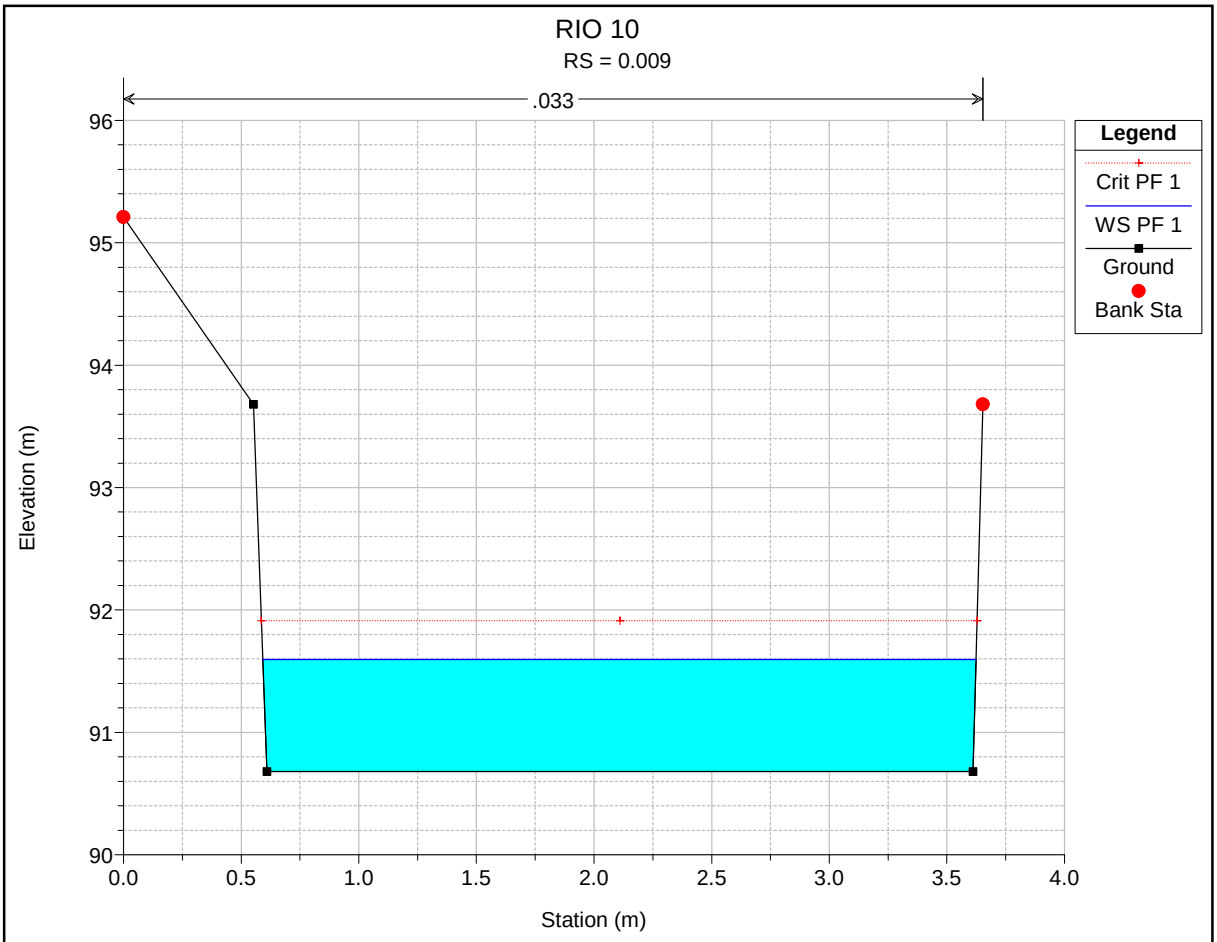

RIO 10
RS = 0.058
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
104
102
100
98
96
94
92
0
1
2
3
4
5
6

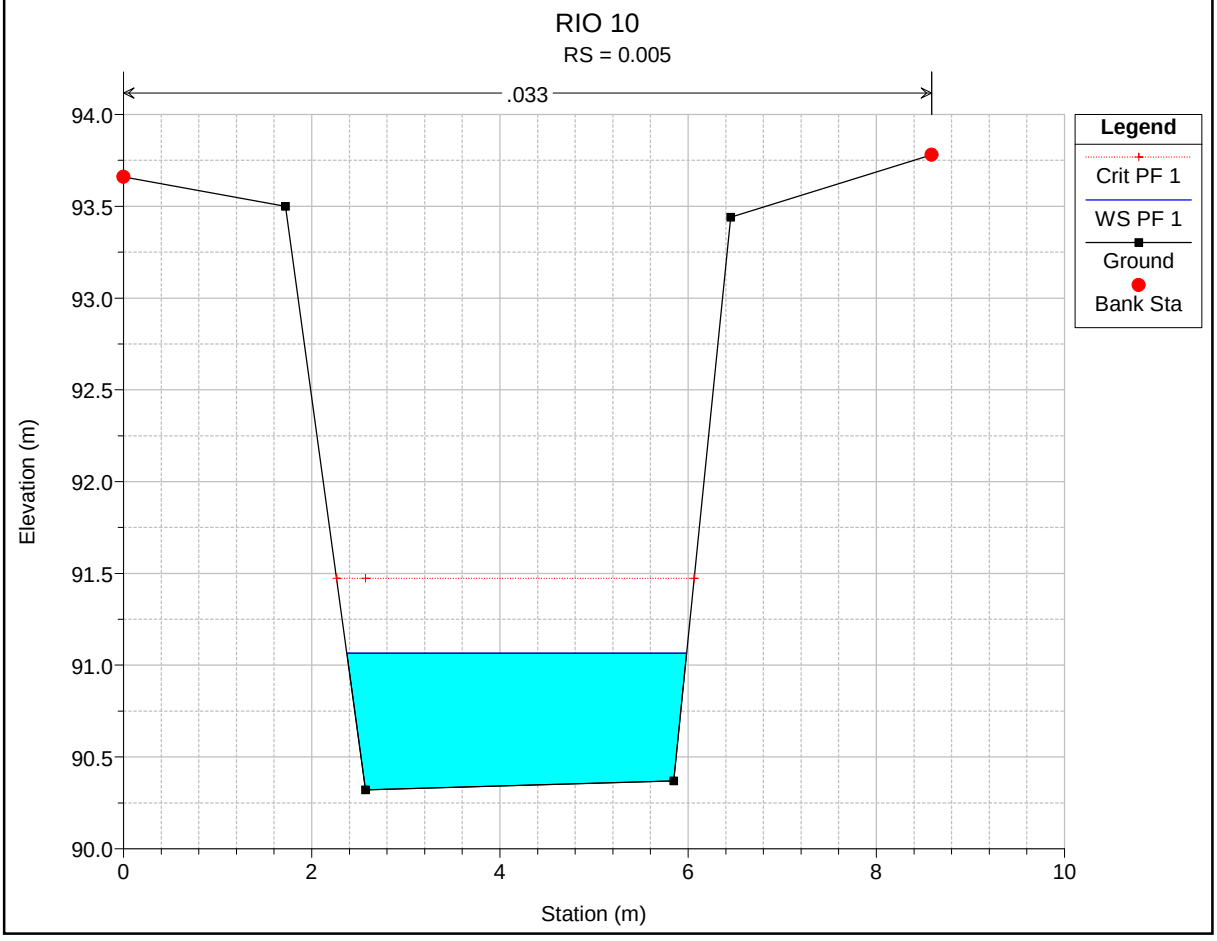

RIO 10
RS = 0.053
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
96.0
95.5
95.0
94.5
94.0
93.5
93.0
92.5
0
1
2
3
4
5

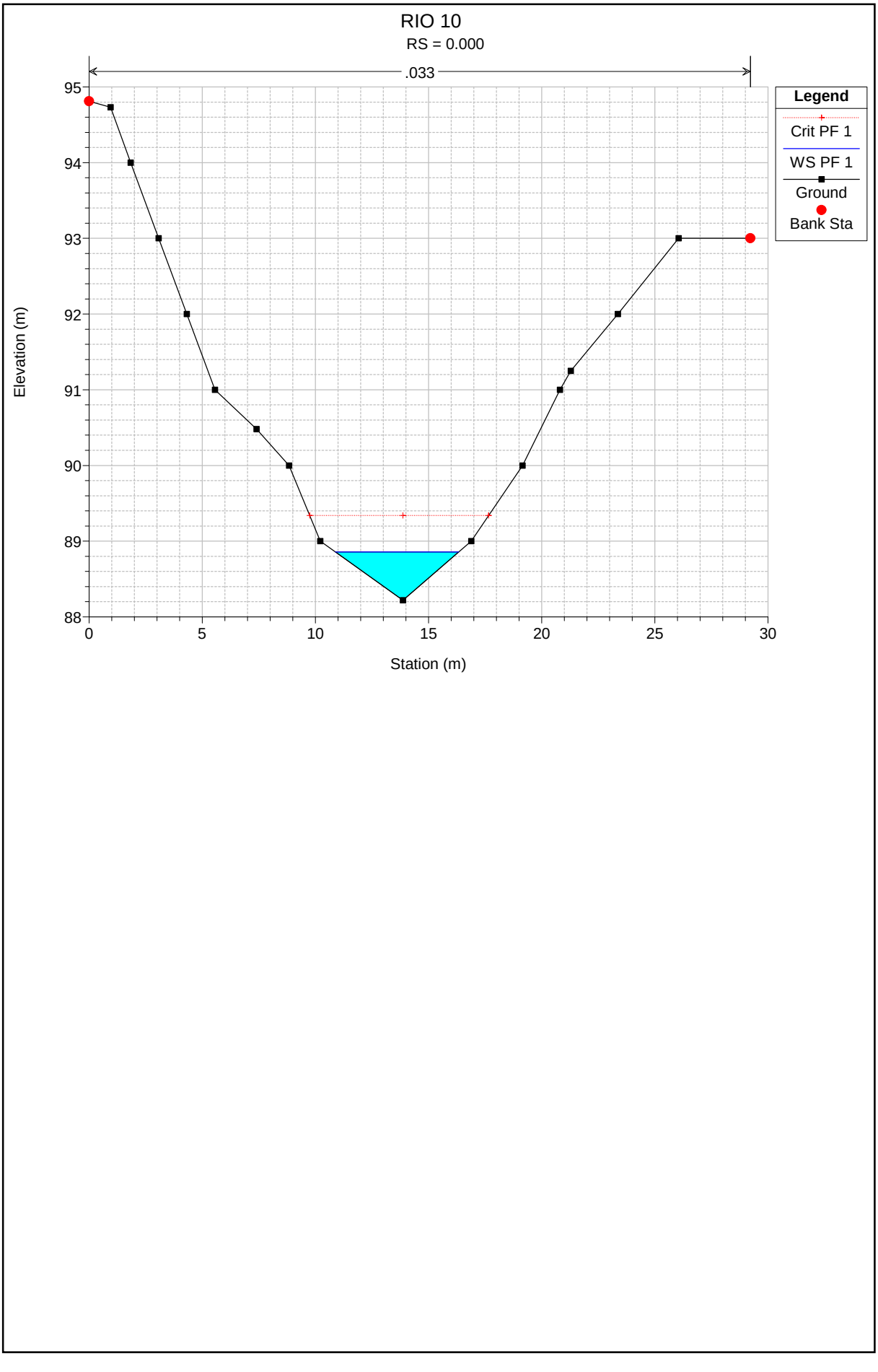

RIO 10
RS = 0.050
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
96.0
95.5
95.0
94.5
94.0
93.5
93.0
92.5
0
1
2
3
4
5
6


RIO 10
RS = 0.047
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
96.0
95.5
95.0
94.5
94.0
93.5
93.0
92.5
0
1
2
3
4


RIO 10
RS = 0.033
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
95.0
94.5
94.0
93.5
93.0
92.5
92.0
91.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO 10
RS = 0.009
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
96
95
94
93
92
91
90
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0


RIO 10
RS = 0.005
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
90.5
90.0
0
2
4
6
8
10


RIO 10
RS = 0.000
.033
Legend
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
95
94
93
92
91
90
89
88
0
5
10
15
20
25
30

RIO 10

rio10 Reach 1

Legend

Crit PF 1

WS PF 1

Ground

LOB

ROB

Elevation (m)

106
104
102
100
98
96
94
92
90
88

0.005 0.009 0.033 0.047 0.050 0.053 0.058 0.075 0.098 0.106 0.111 0.116 0.132 0.144 0.156 0.170 0.185 0.198 0.210 0.219

0
50
100
150
200
250

Main Channel Distance (m)

HEC-RAS Plan: Plan 01 River: rio10 Reach: Reach 1 Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.219	PF 1	12.88	98.86	99.99	100.27	4.40	1.38	101.37	4.77	104.76	0.99	1.47
Reach 1	0.210	PF 1	12.88	98.52	100.01	100.02	3.54	1.02	101.03	3.81	103.82	0.64	1.00
Reach 1	0.198	PF 1	12.88	98.05	99.32	99.56	4.32	1.24	100.56	4.04	103.36	0.95	1.33
Reach 1	0.185	PF 1	12.88	97.61	98.81	99.08	4.37	1.31	100.12	4.32	103.13	0.97	1.40
Reach 1	0.170	PF 1	12.88	97.04	98.23	98.50	4.37	1.31	99.54	3.68	101.91	0.97	1.40
Reach 1	0.156	PF 1	12.88	96.49	97.54	97.86	4.55	1.45	98.99	2.53	100.07	1.06	1.57
Reach 1	0.144	PF 1	12.88	96.00	97.02	97.34	4.54	1.53	98.55	5.17	102.19	1.05	1.58
Reach 1	0.132	PF 1	12.88	95.57	97.05	97.05	3.55	1.03	98.08	4.55	101.60	0.64	1.00
Reach 1	0.116	PF 1	12.88	94.99	96.10	96.42	4.59	1.39	97.49	3.35	99.45	1.08	1.53
Reach 1	0.111	PF 1	12.88	94.79	95.70	96.07	4.88	1.59	97.29	3.05	98.75	1.21	1.74
Reach 1	0.106	PF 1	12.88	94.60	95.42	95.79	4.88	1.69	97.11	4.18	99.60	1.21	1.77
Reach 1	0.098	PF 1	12.88	94.31	95.25	95.51	4.31	1.56	96.81	5.29	100.54	0.95	1.46
Reach 1	0.075	PF 1	12.88	93.77	94.98	94.98	3.38	1.29	96.27	6.95	101.93	0.58	1.00
Reach 1	0.058	PF 1	12.88	93.12	94.07	94.34	4.37	1.55	95.62	8.38	102.45	0.97	1.45
Reach 1	0.053	PF 1	12.88	92.87	93.85	94.10	4.37	1.76	95.61	2.12	95.97	0.97	1.42
Reach 1	0.050	PF 1	12.88	92.72	93.68	93.95	4.47	2.04	95.72	1.81	95.49	1.02	1.46
Reach 1	0.047	PF 1	12.88	92.58	93.53	93.81	4.51	2.05	95.58	1.65	95.18	1.04	1.48
Reach 1	0.033	PF 1	12.88	91.90	92.82	93.13	4.63	2.08	94.90	2.08	94.90	1.09	1.55
Reach 1	0.009	PF 1	12.88	90.68	91.60	91.91	4.66	3.61	95.21	2.08	93.68	1.11	1.56
Reach 1	0.005	PF 1	12.88	90.32	91.07	91.47	5.19	2.59	93.66	2.71	93.78	1.37	2.00
Reach 1	0.000	PF 1	12.88	88.22	88.86	89.34	7.43	5.95	94.81	4.14	93.00	2.82	4.21

VERIFICA IDRAULICA

RIO 6 - Tratto di monte

FASE FINALE

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

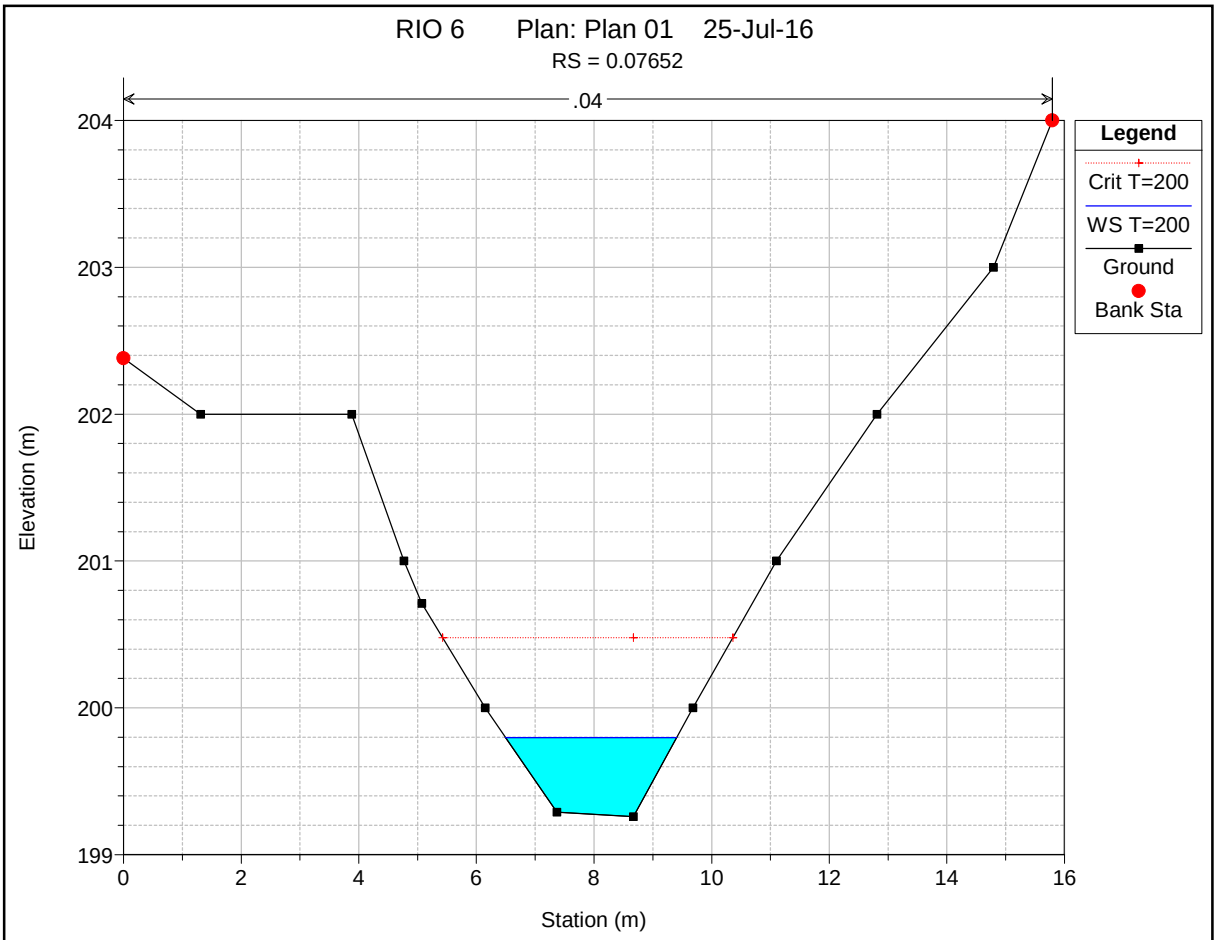
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

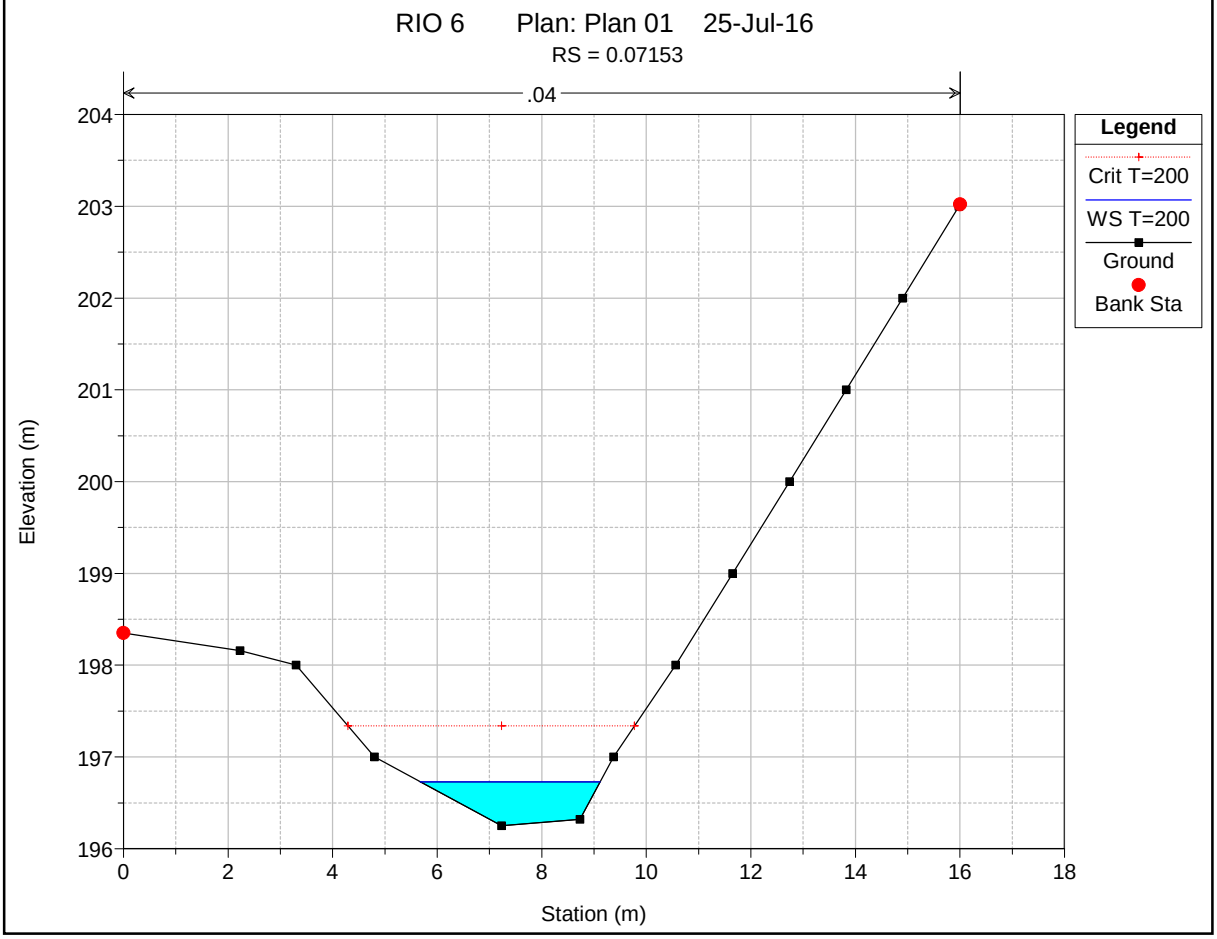
Vel Chnl = Velocità della corrente nel canale.

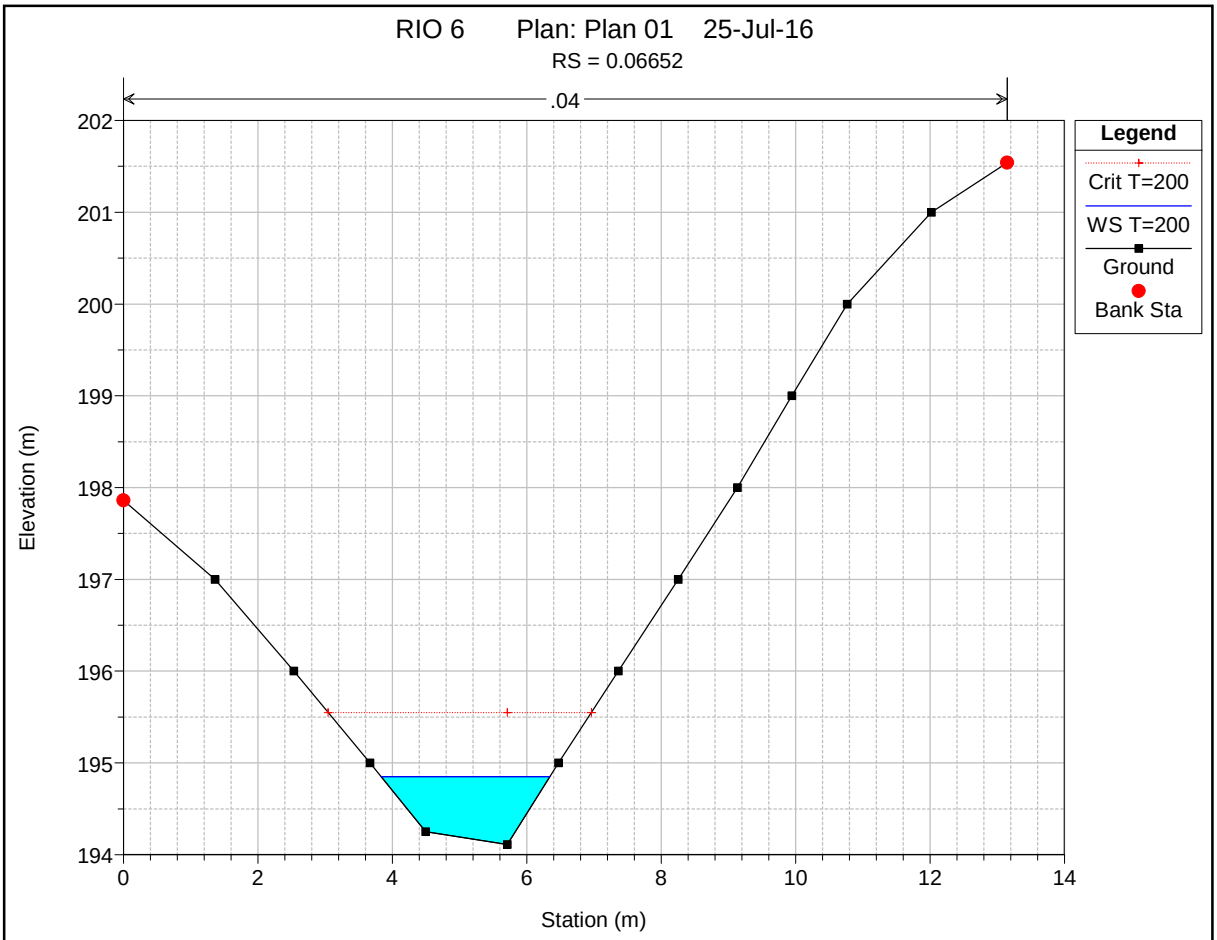
Froude = n° di froude della corrente.

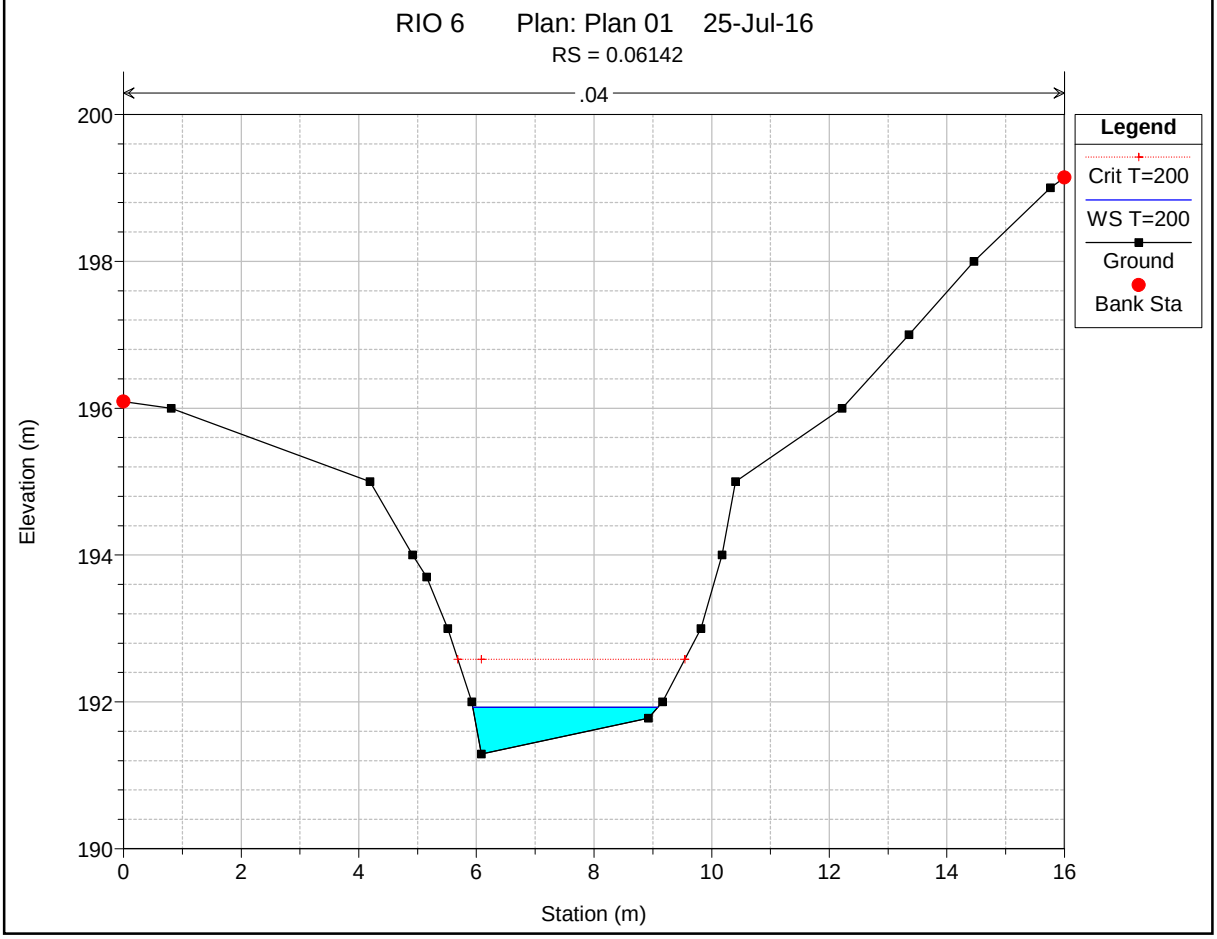
Vel. Head = $U^2/2g$.

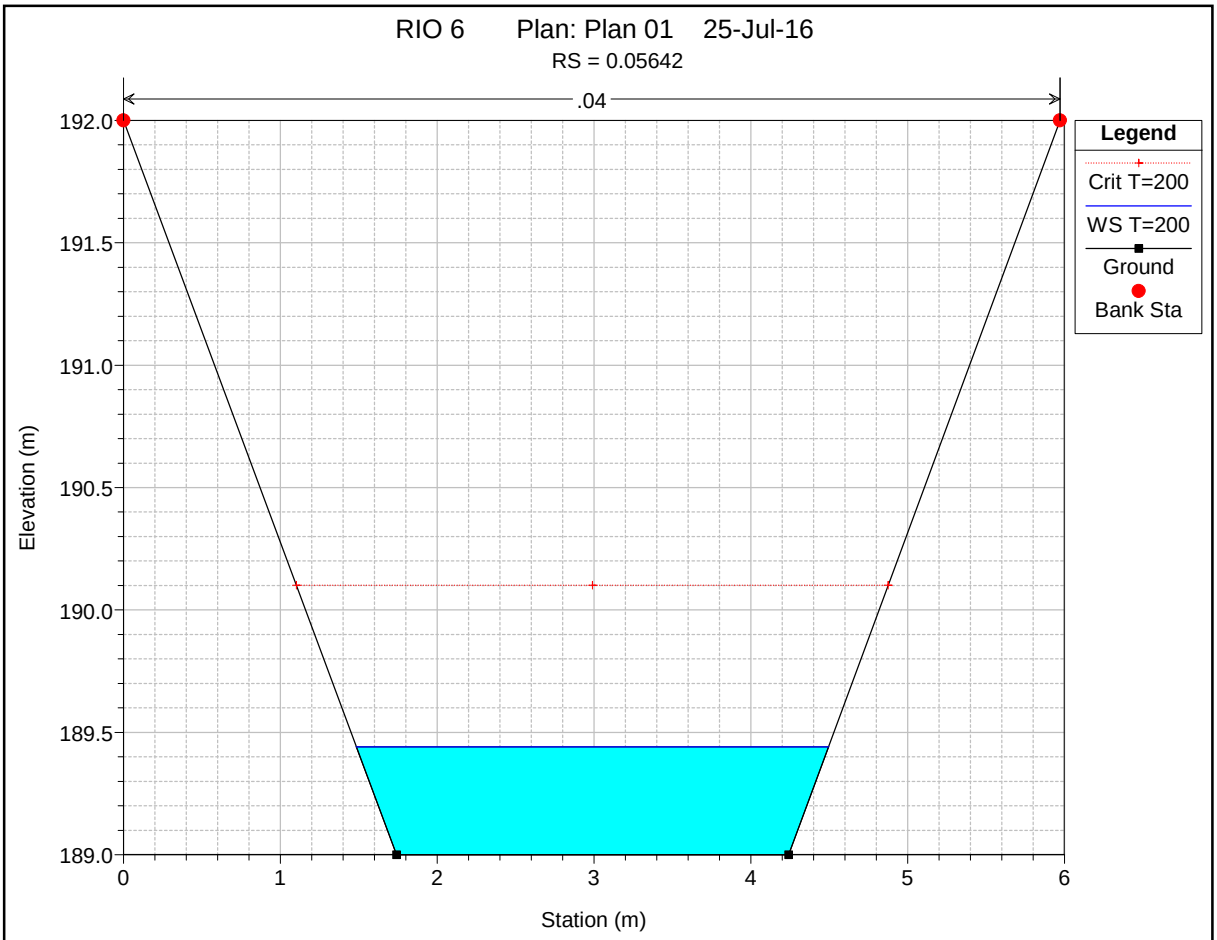
STATO di PROGETTO

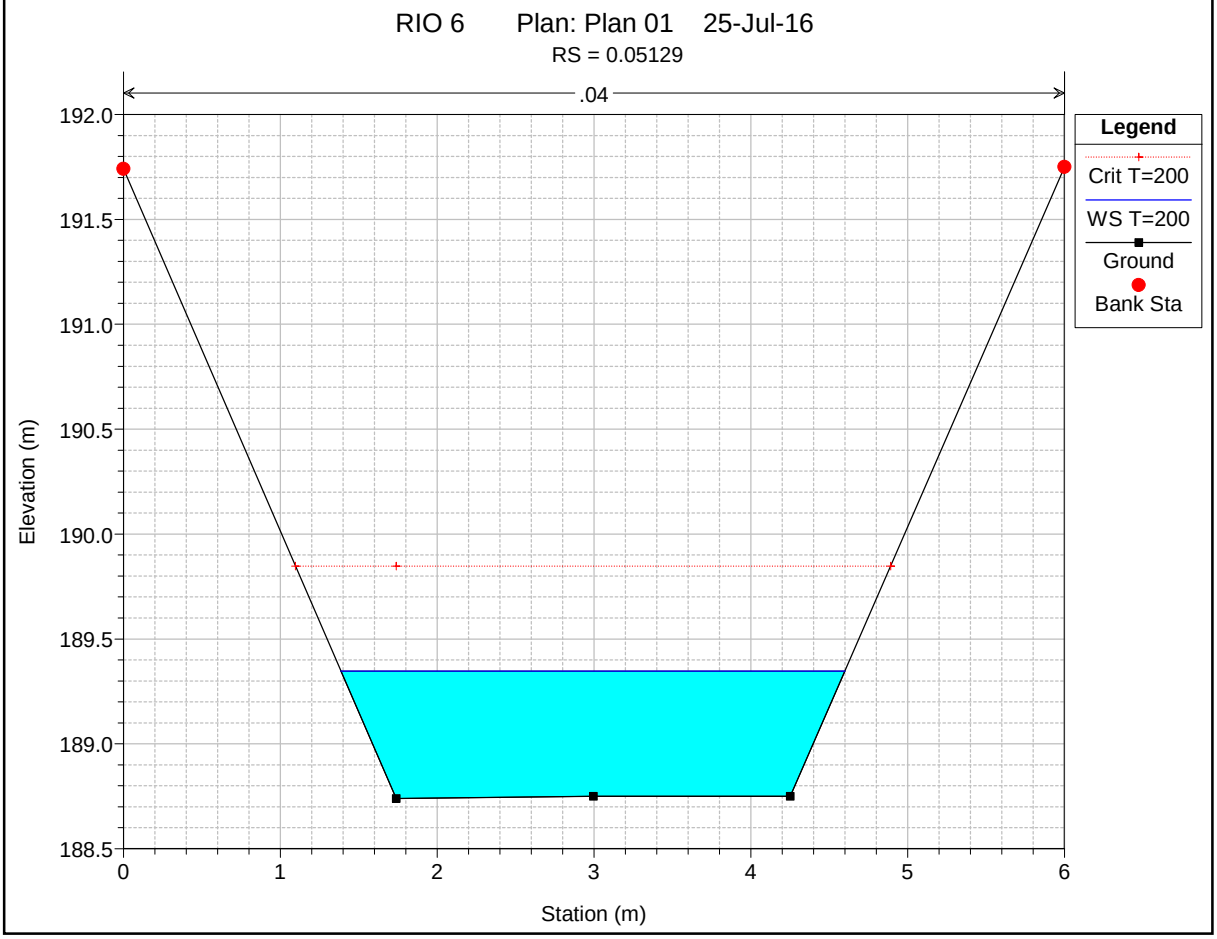

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07652
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204
203
202
201
200
199
0
2
4
6
8
10
12
14
16

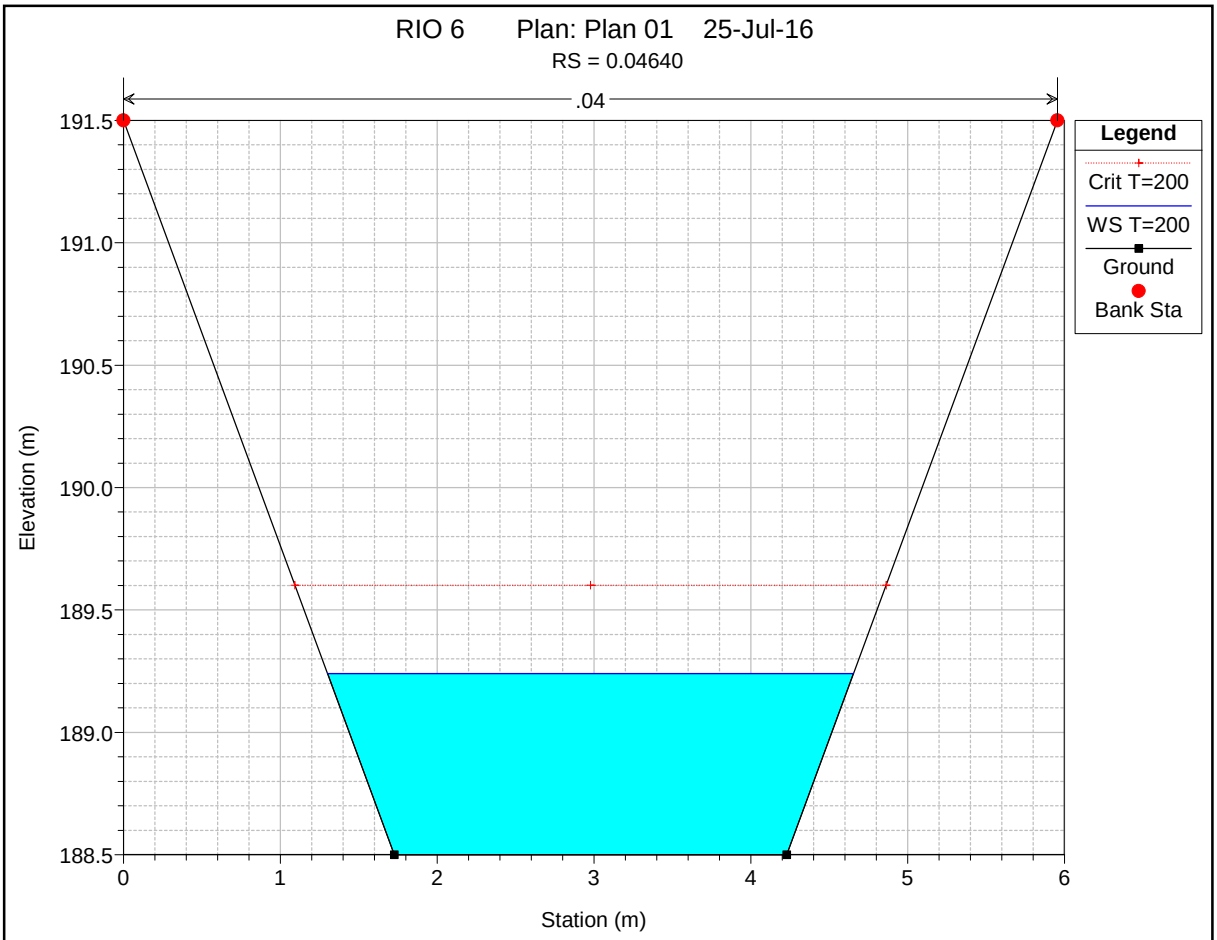

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07153
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204
203
202
201
200
199
198
197
196
0
2
4
6
8
10
12
14
16
18

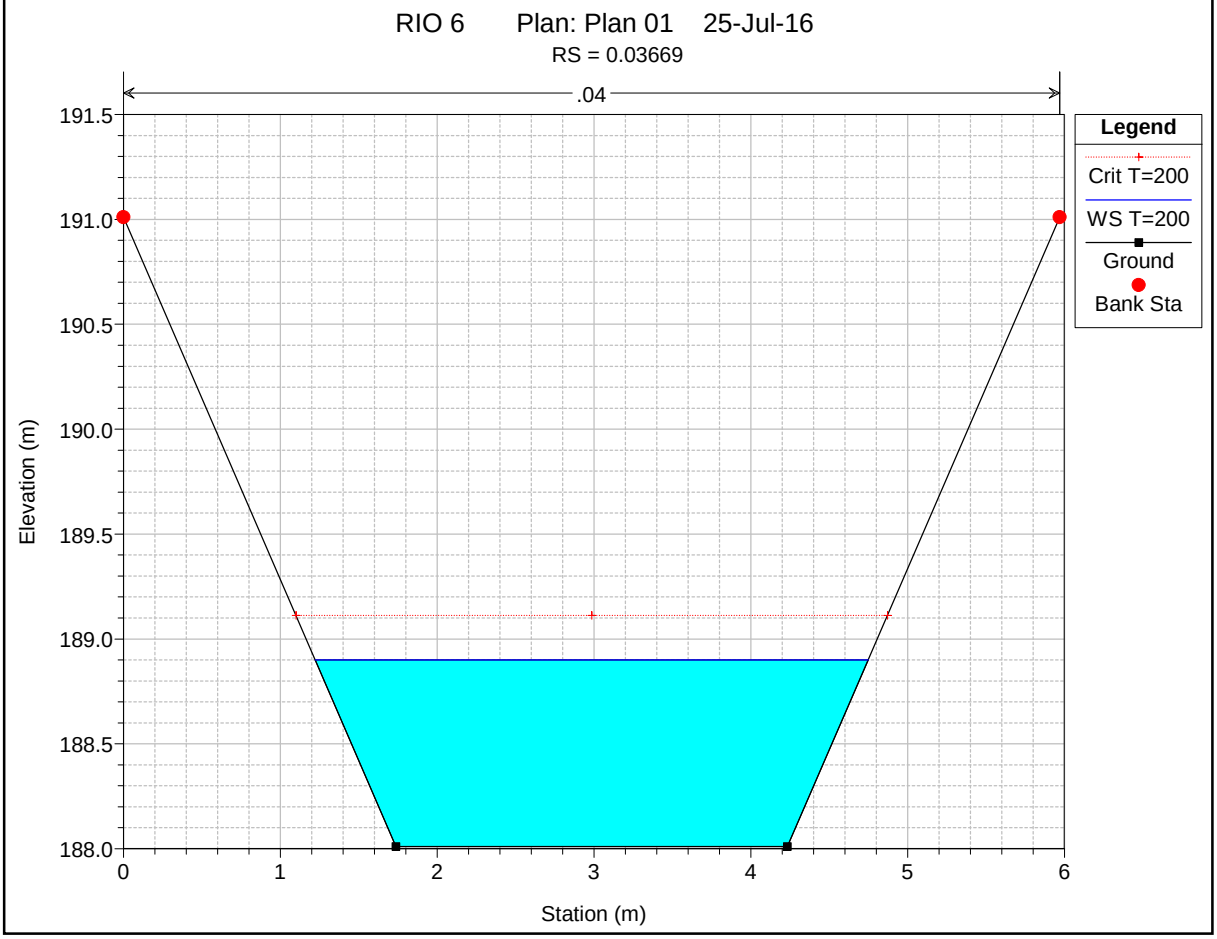

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06652
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202
201
200
199
198
197
196
195
194
0
2
4
6
8
10
12
14

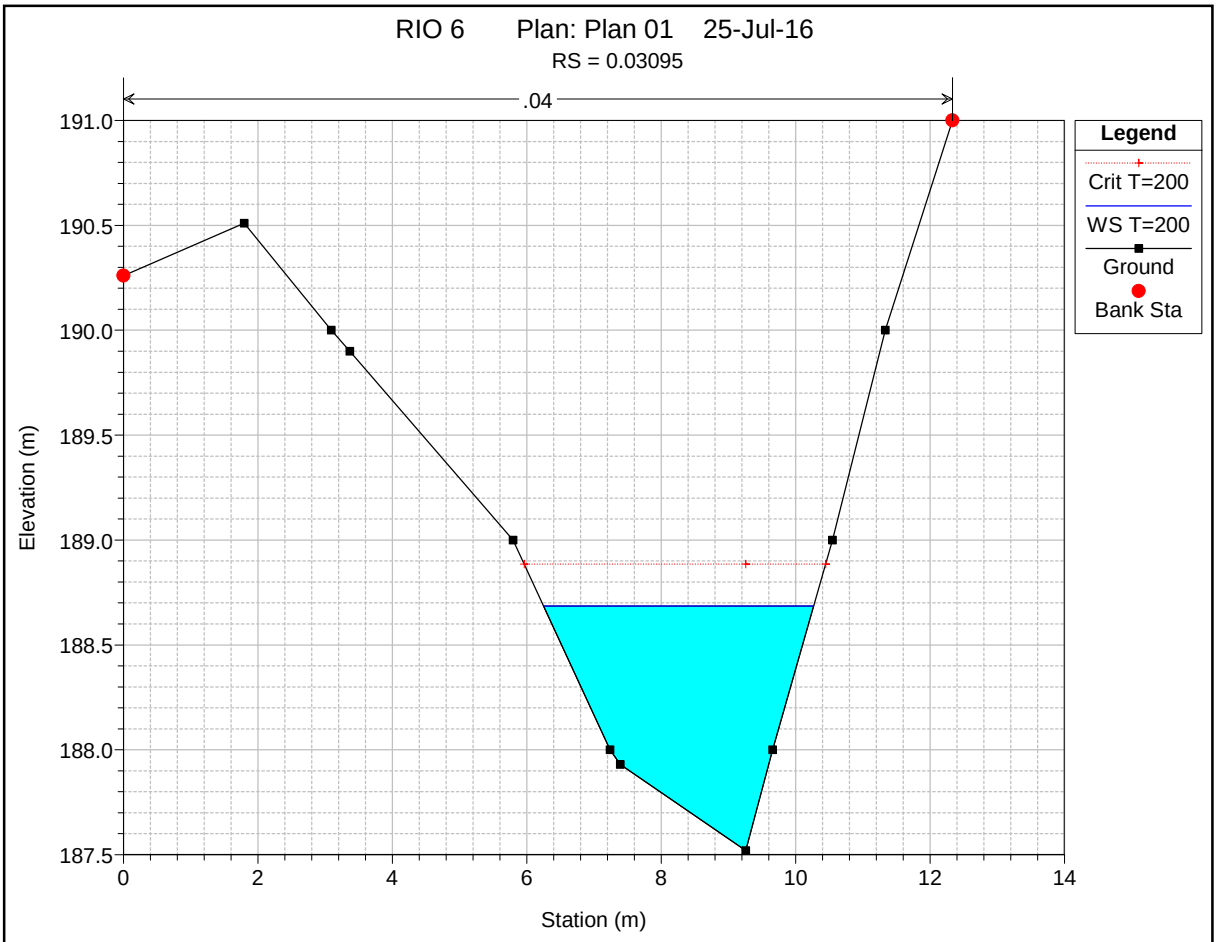

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06142
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
200
198
196
194
192
190
0
2
4
6
8
10
12
14
16

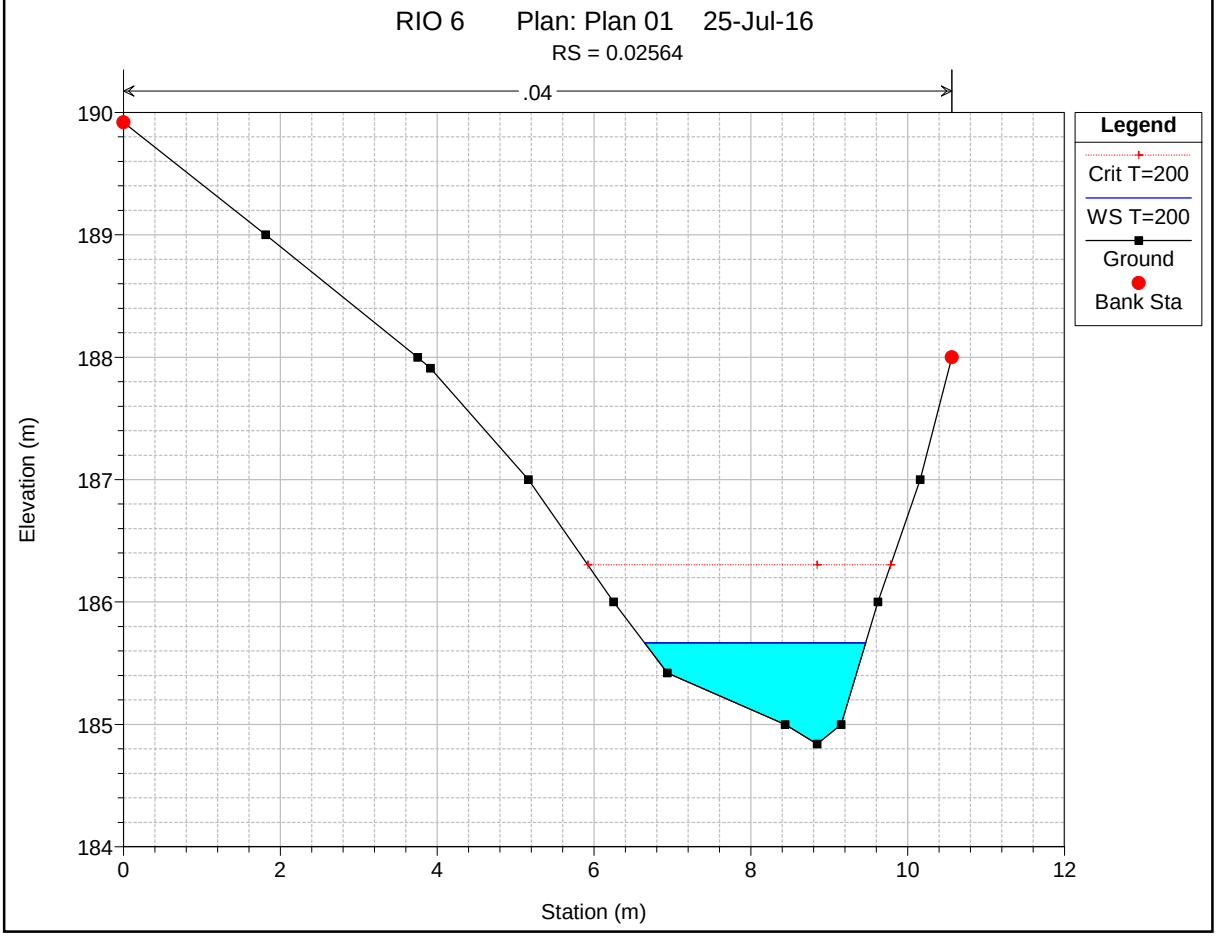

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05642
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
192.0
191.5
191.0
190.5
190.0
189.5
189.0
0
1
2
3
4
5
6

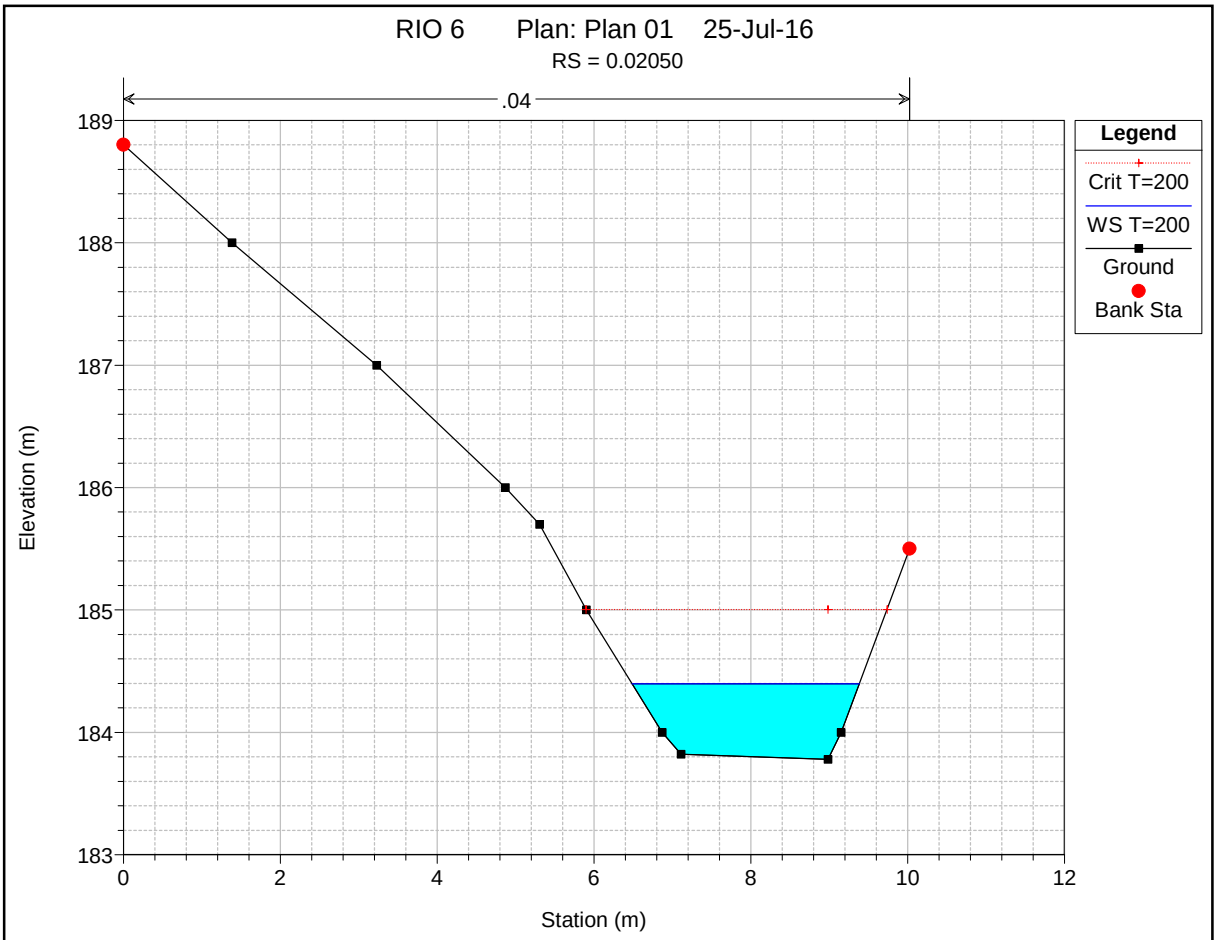

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05129
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
192.0
191.5
191.0
190.5
190.0
189.5
189.0
188.5
0
1
2
3
4
5
6

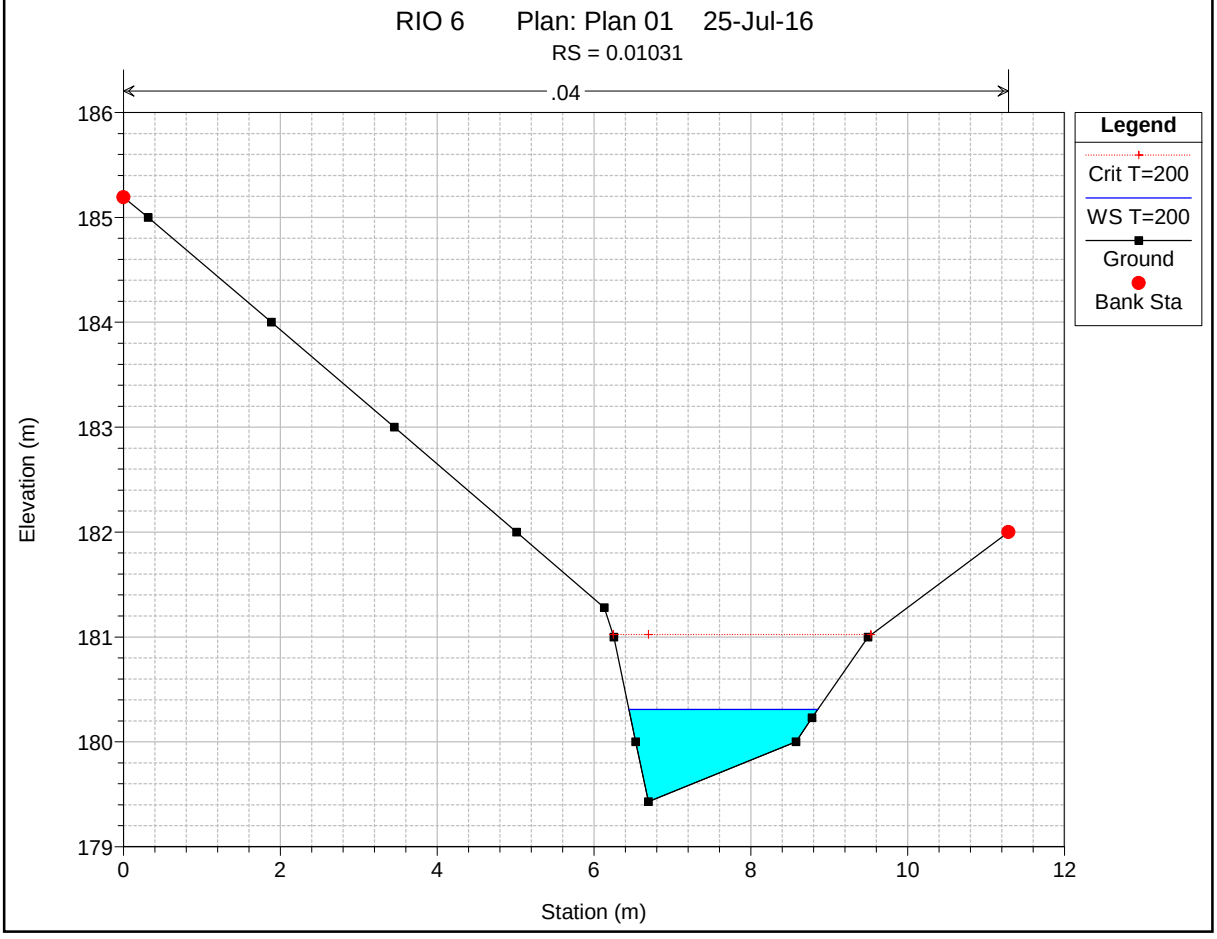

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04640
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
191.5
191.0
190.5
190.0
189.5
189.0
188.5
0
1
2
3
4
5
6

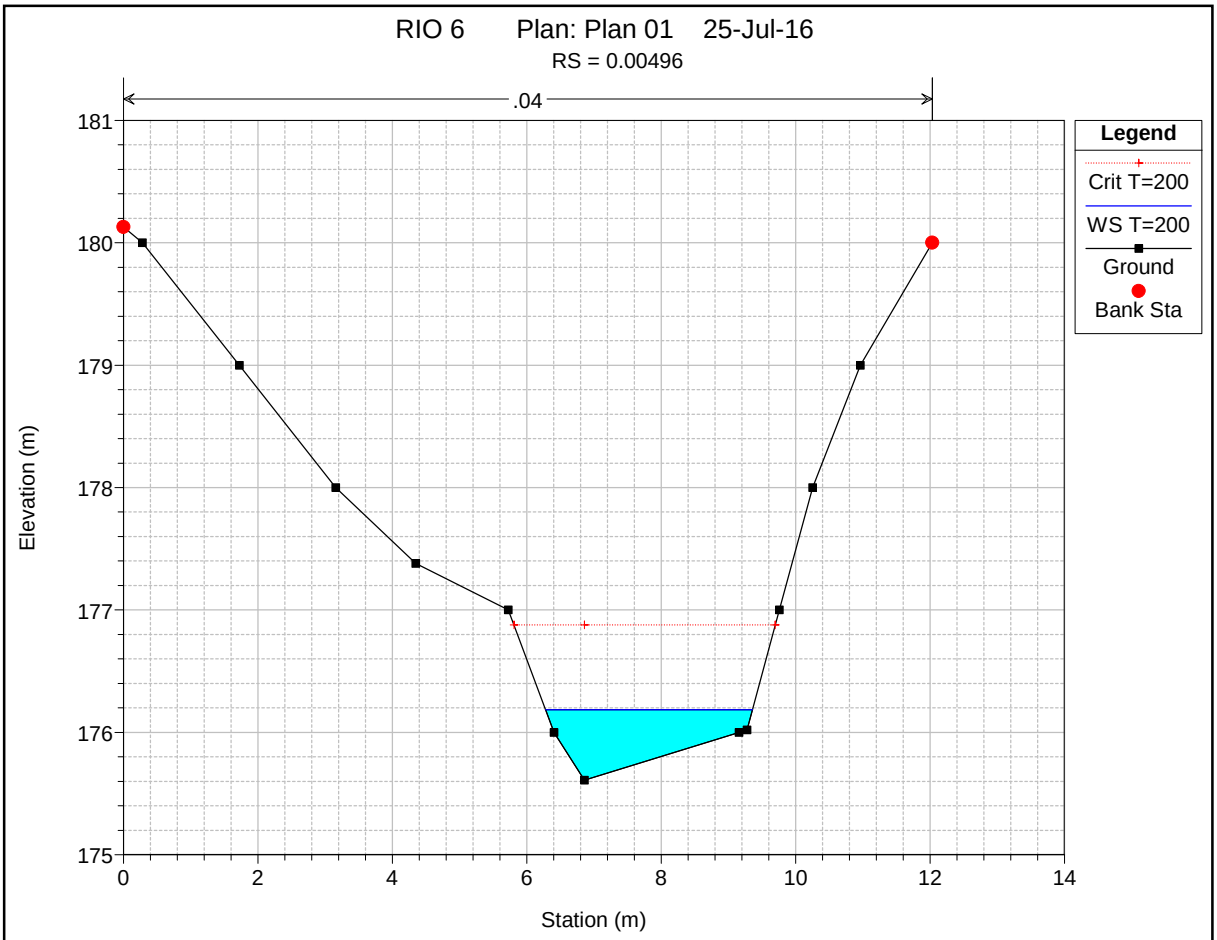

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03669
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
191.5
191.0
190.5
190.0
189.5
189.0
188.5
188.0
0
1
2
3
4
5
6

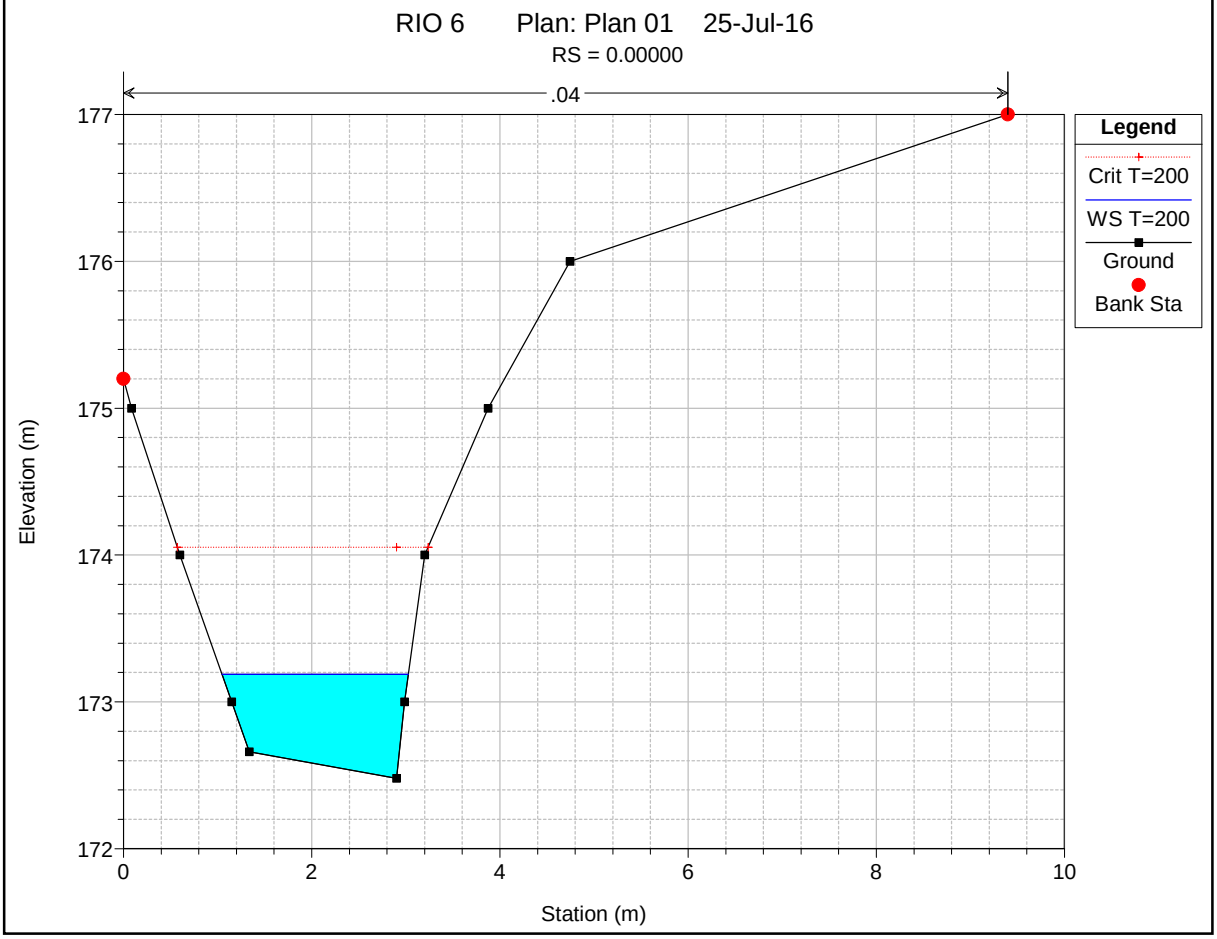

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03095
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
191.0
190.5
190.0
189.5
189.0
188.5
188.0
187.5
0
2
4
6
8
10
12
14

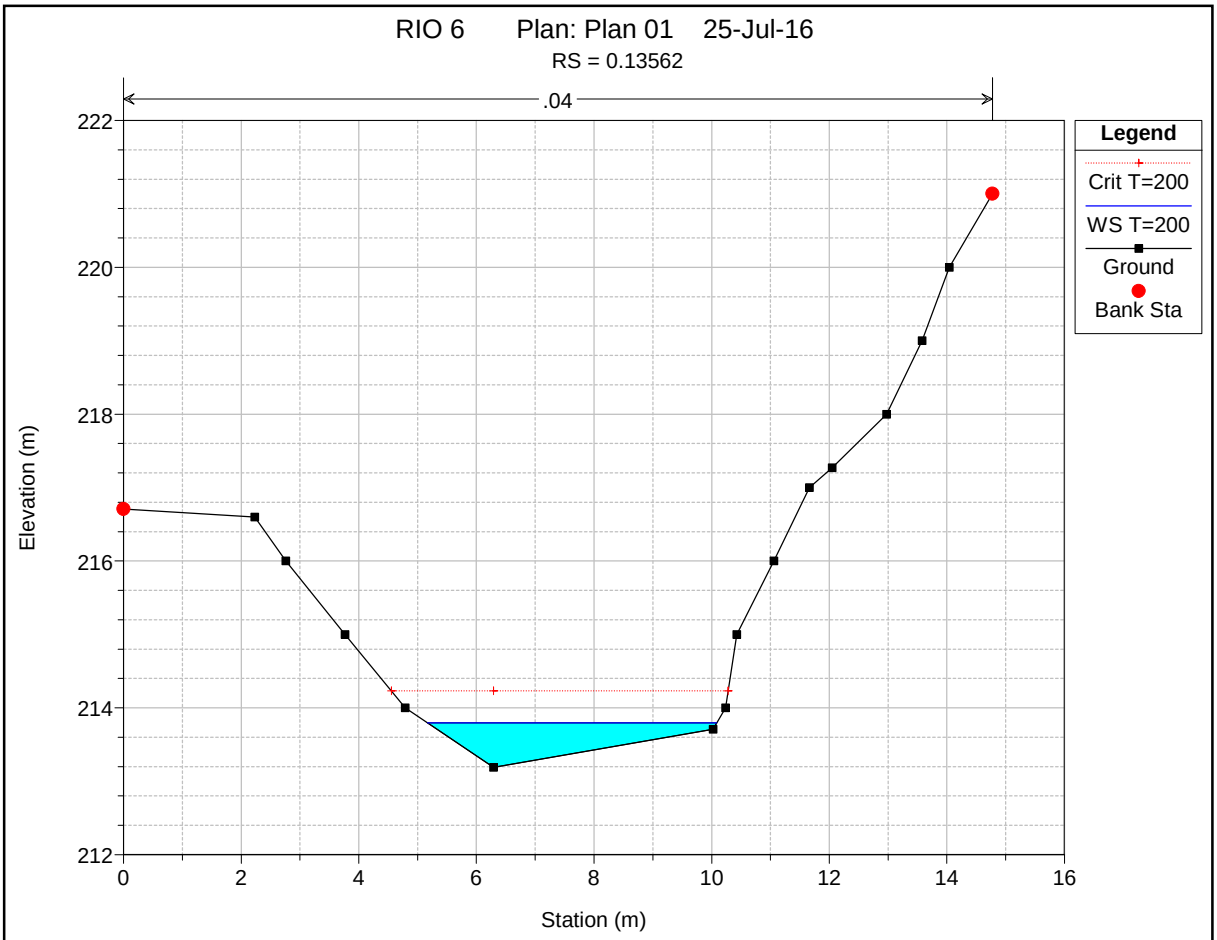

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02564
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
190
189
188
187
186
185
184
0
2
4
6
8
10
12

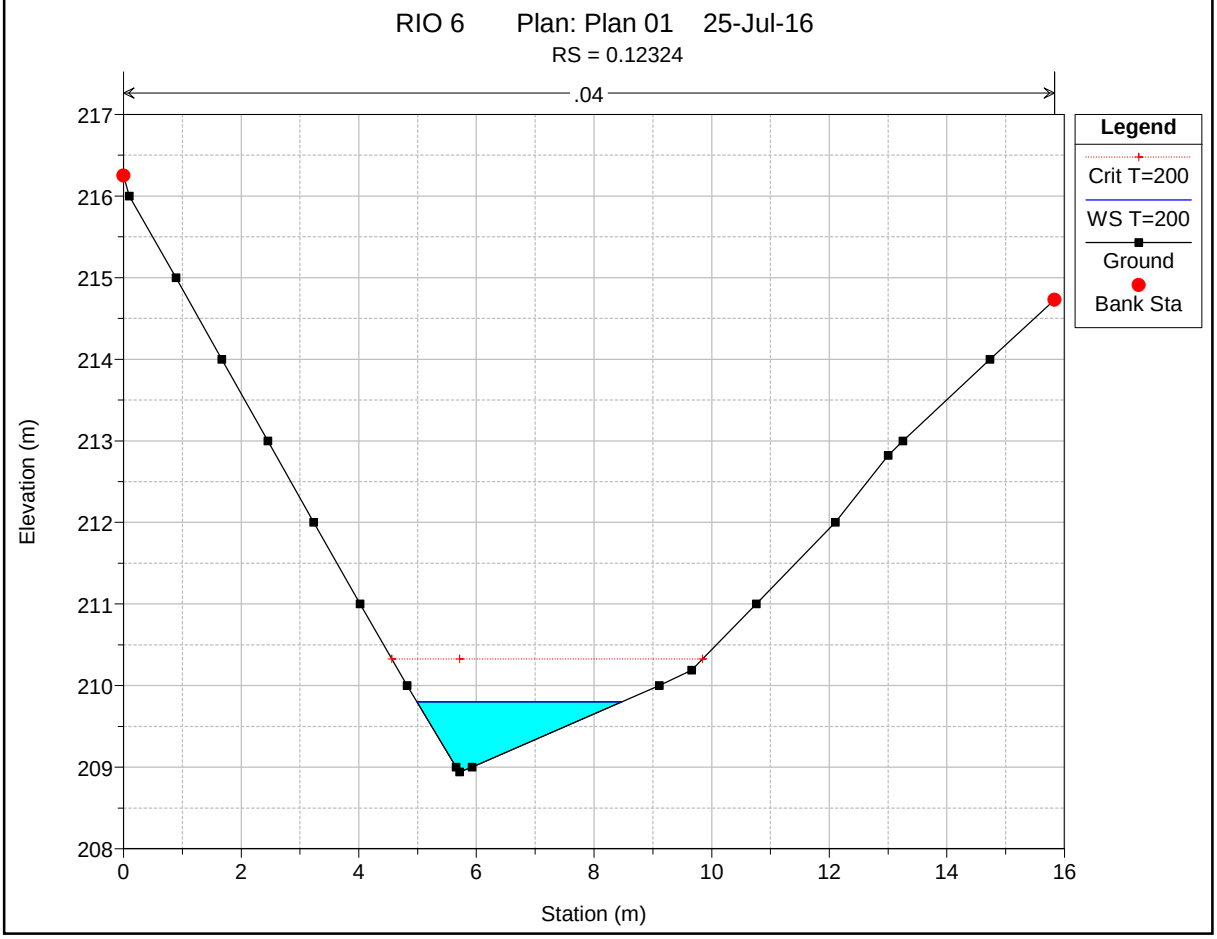

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02050
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
189
188
187
186
185
184
183
0
2
4
6
8
10
12

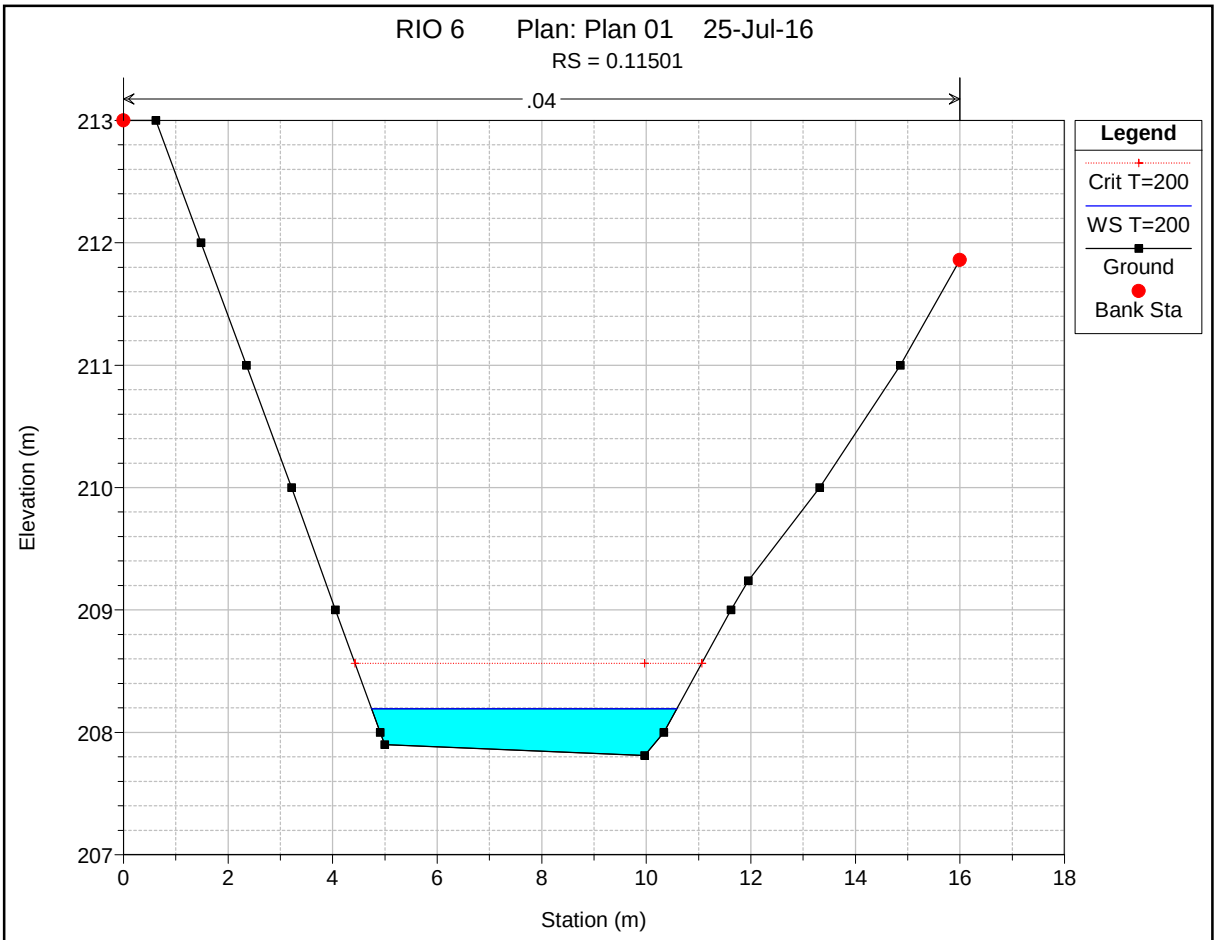

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01031
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
186
185
184
183
182
181
180
179
0
2
4
6
8
10
12

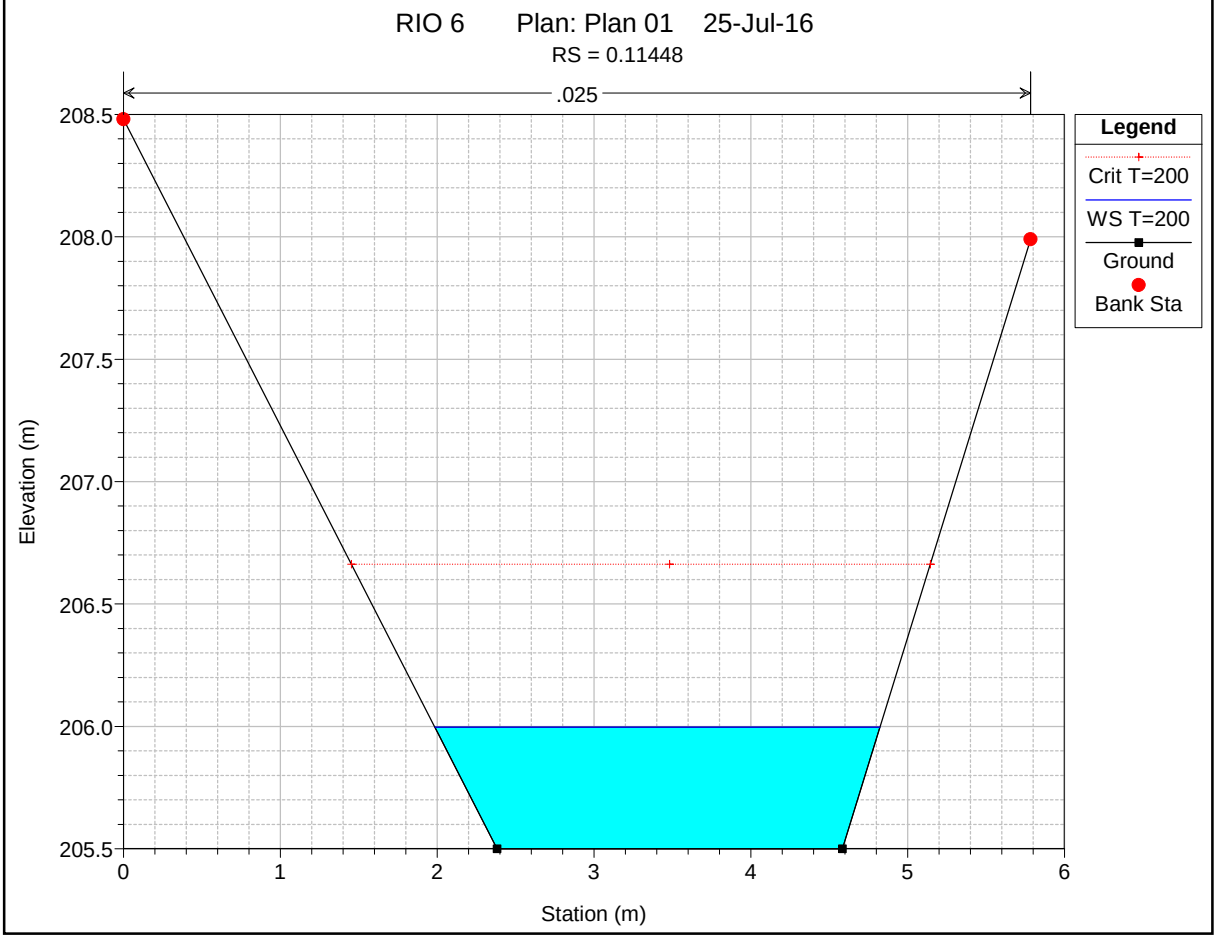

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00496
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
181
180
179
178
177
176
175
0
2
4
6
8
10
12
14

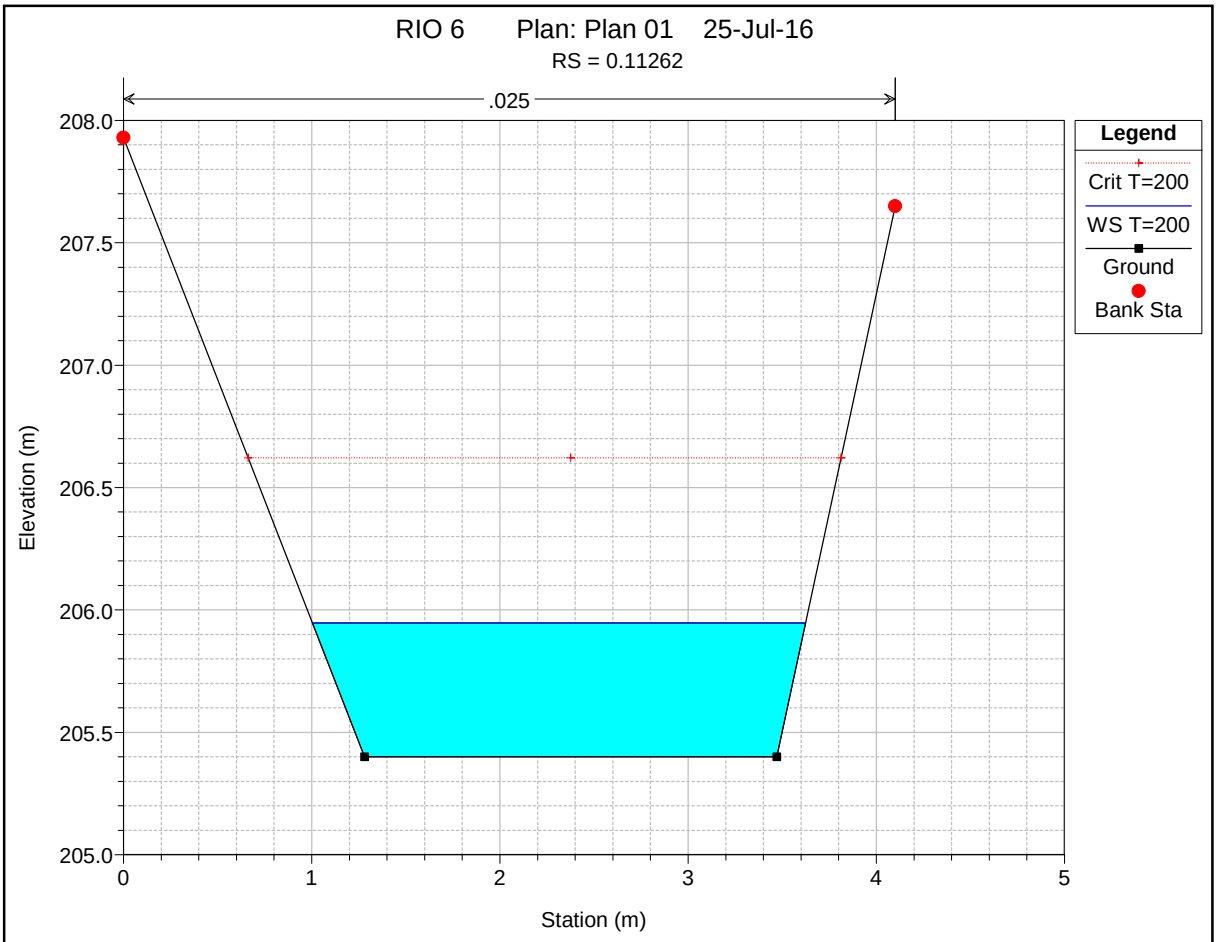

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00000
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
177
176
175
174
173
172
0
2
4
6
8
10

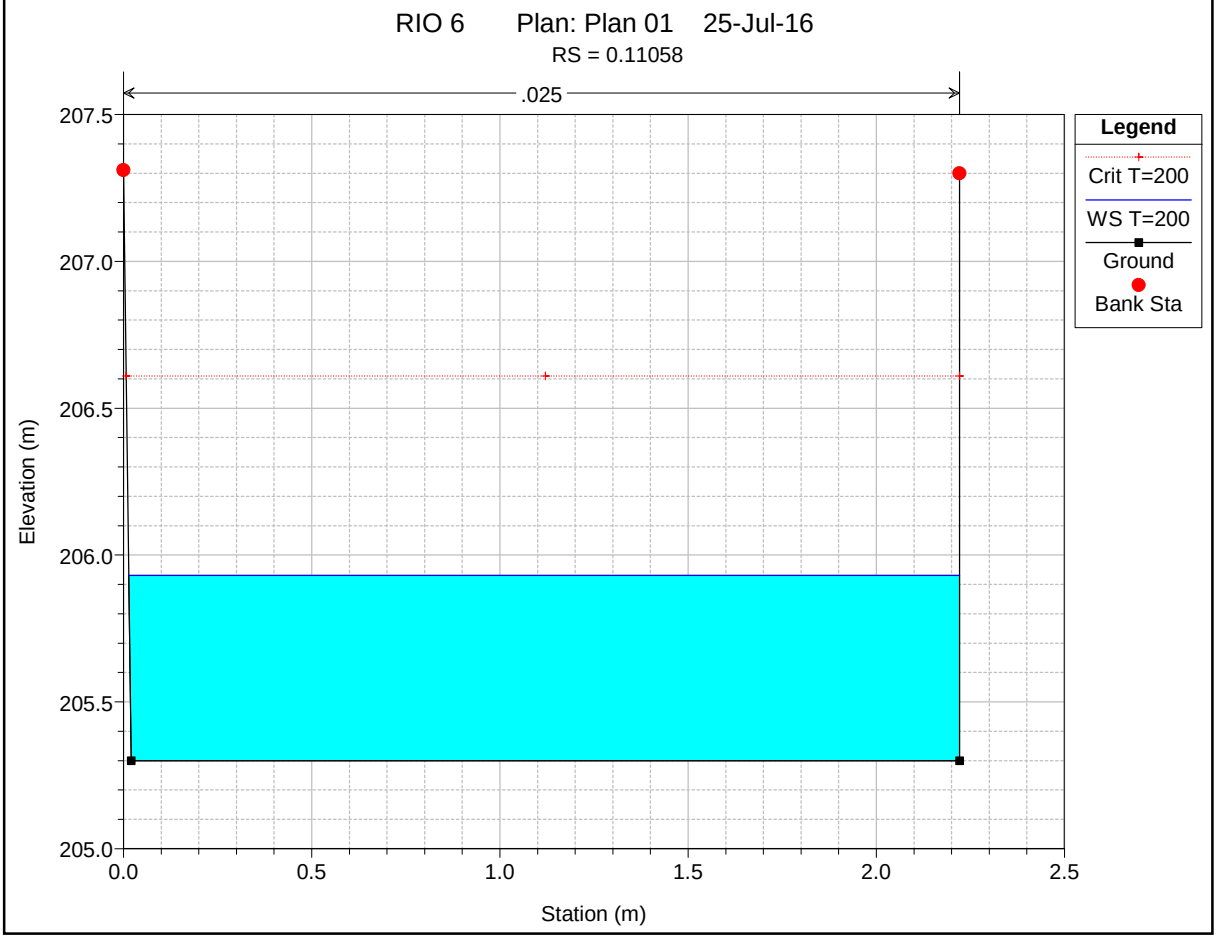

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.13562
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
222
220
218
216
214
212
0
2
4
6
8
10
12
14
16

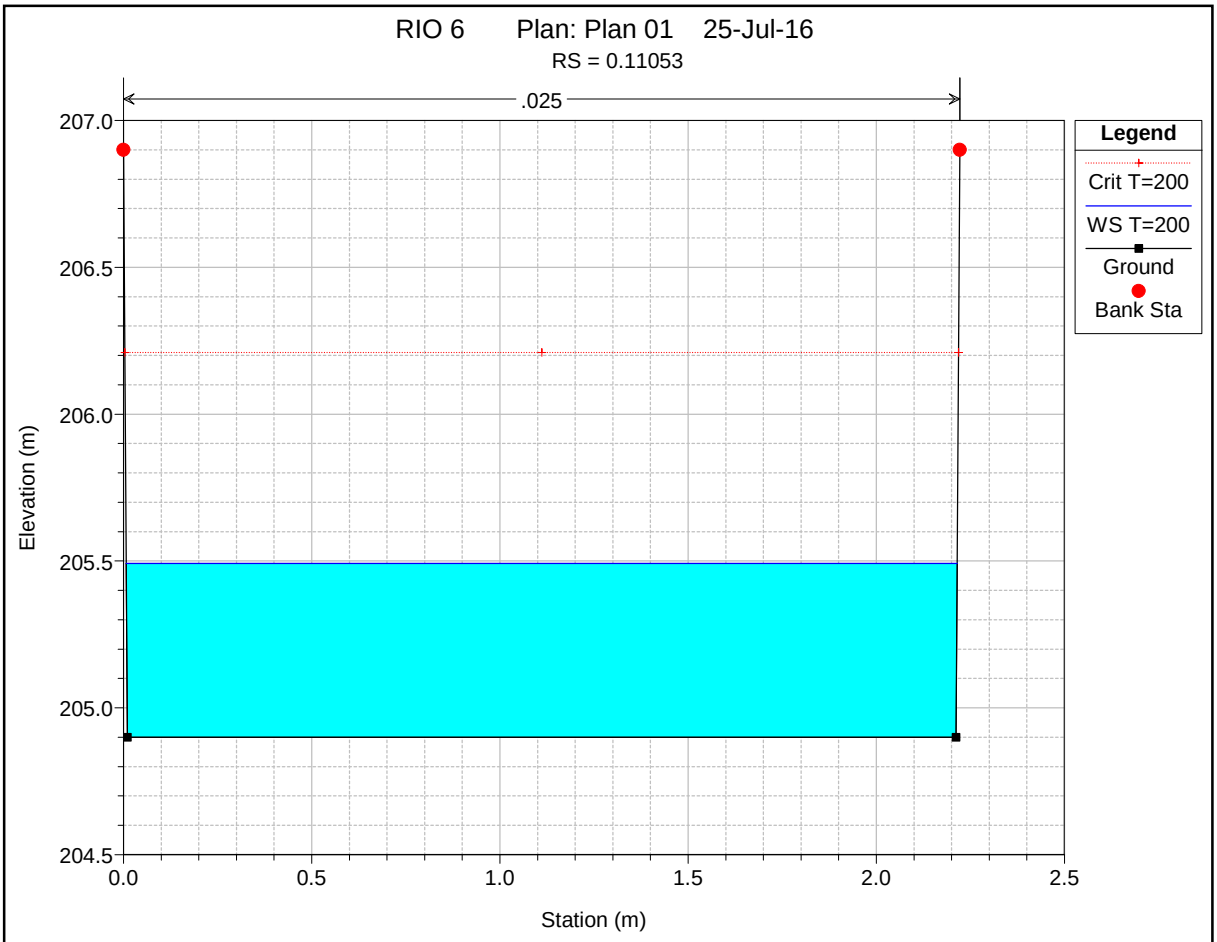

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.12324
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
217
216
215
214
213
212
211
210
209
208
0
2
4
6
8
10
12
14
16

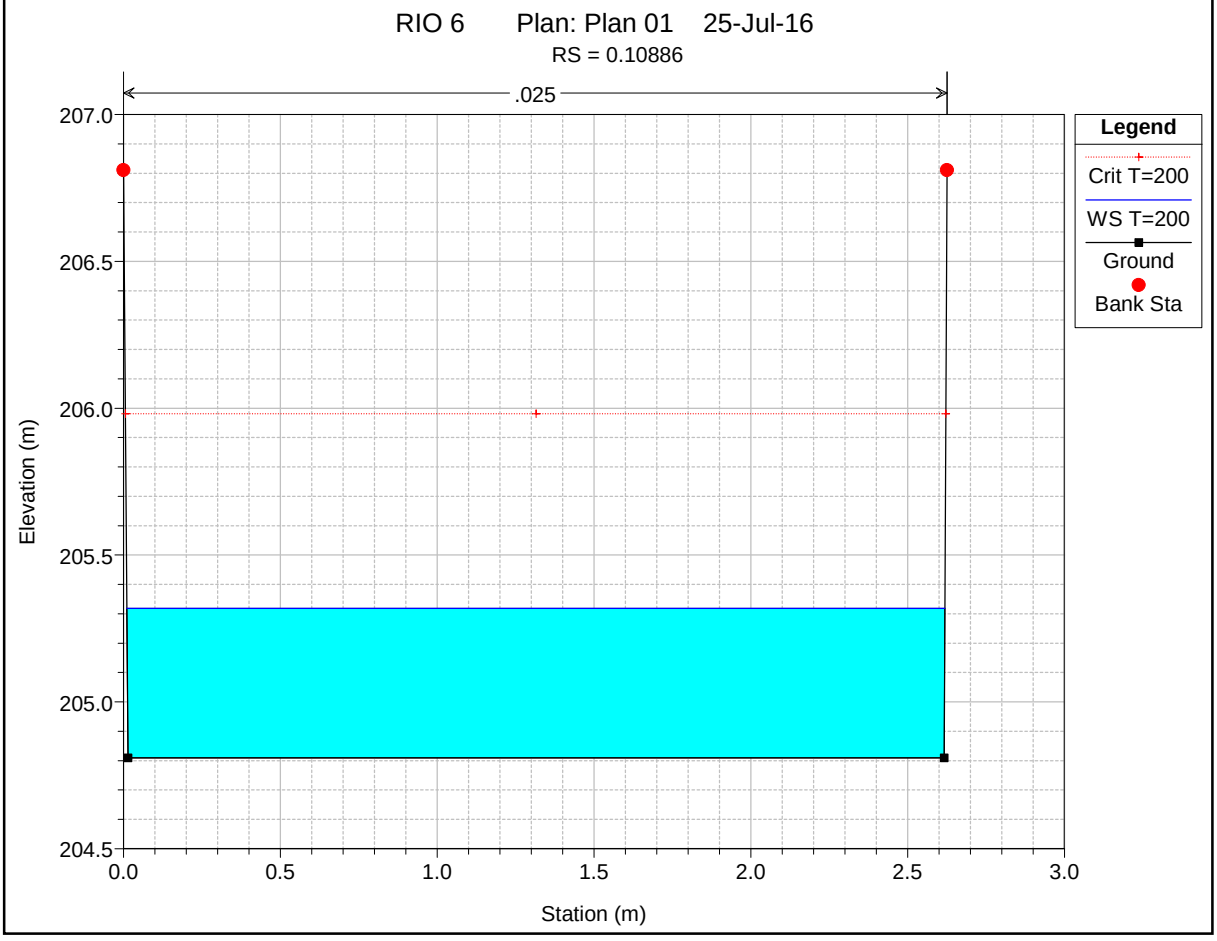

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11501
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
213
212
211
210
209
208
207
0
2
4
6
8
10
12
14
16
18

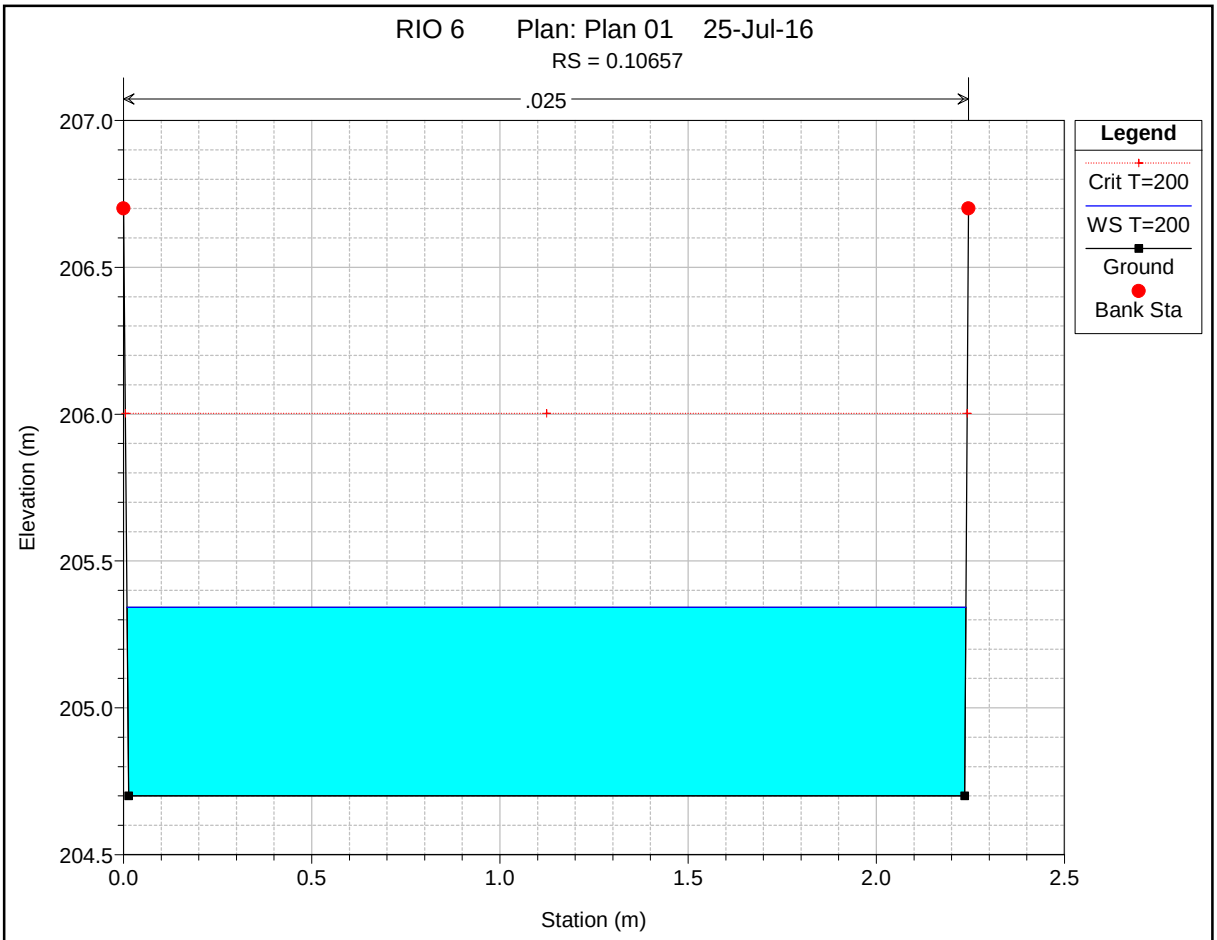

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11448
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
208.5
208.0
207.5
207.0
206.5
206.0
205.5
0
1
2
3
4
5
6

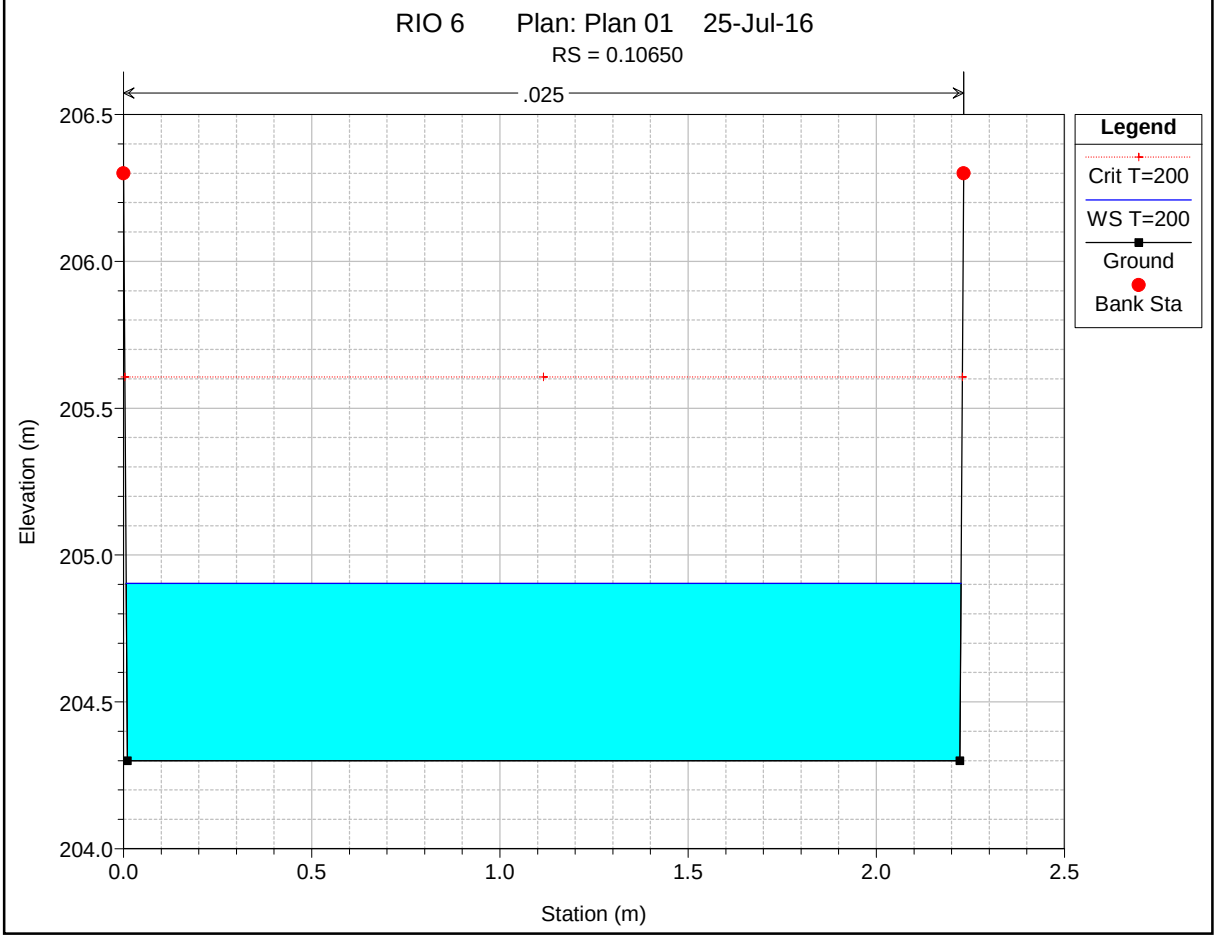

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11262
.025
208.0
207.5
207.0
206.5
206.0
205.5
205.0
Elevation (m)
0
1
2
3
4
5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

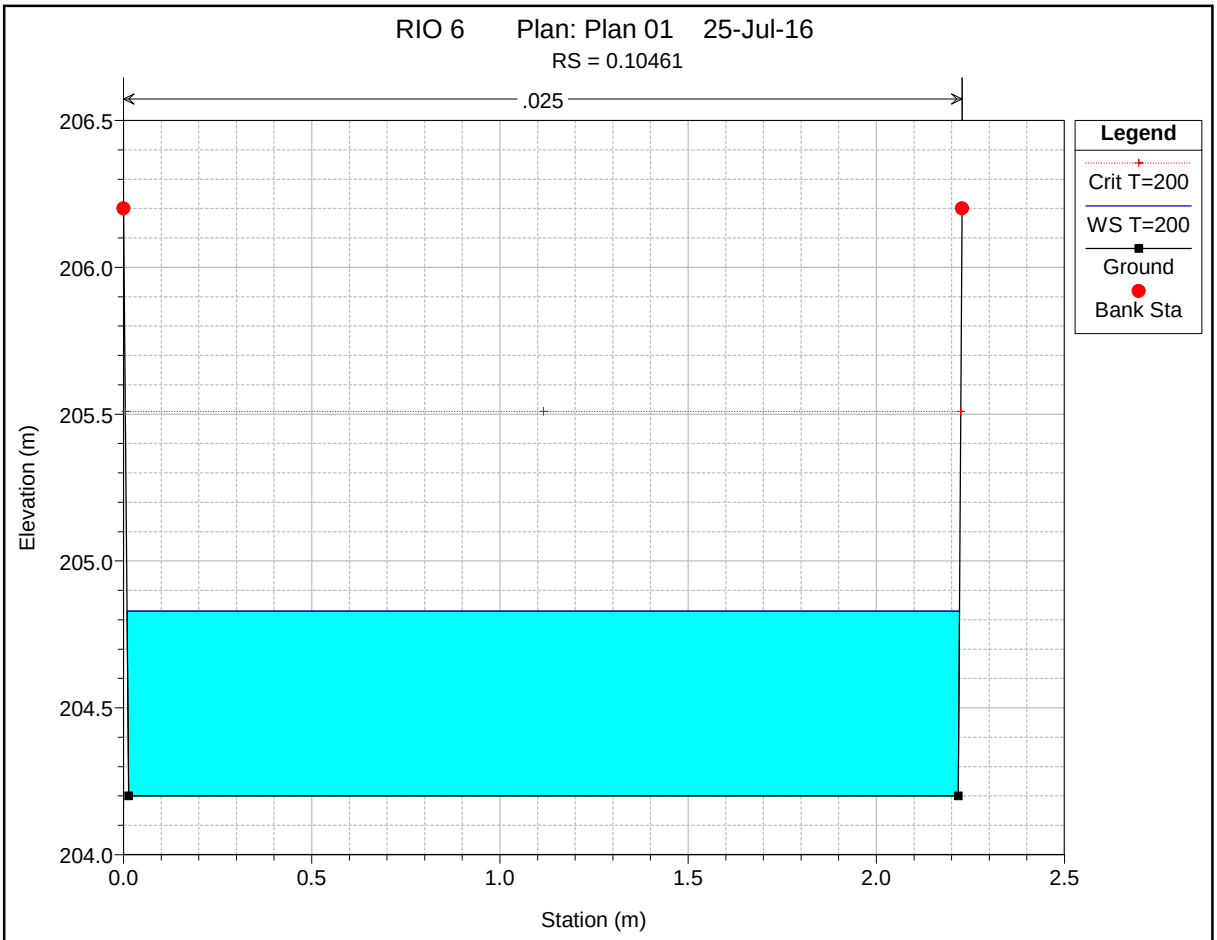

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11058
.025
207.5
207.0
206.5
206.0
205.5
205.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

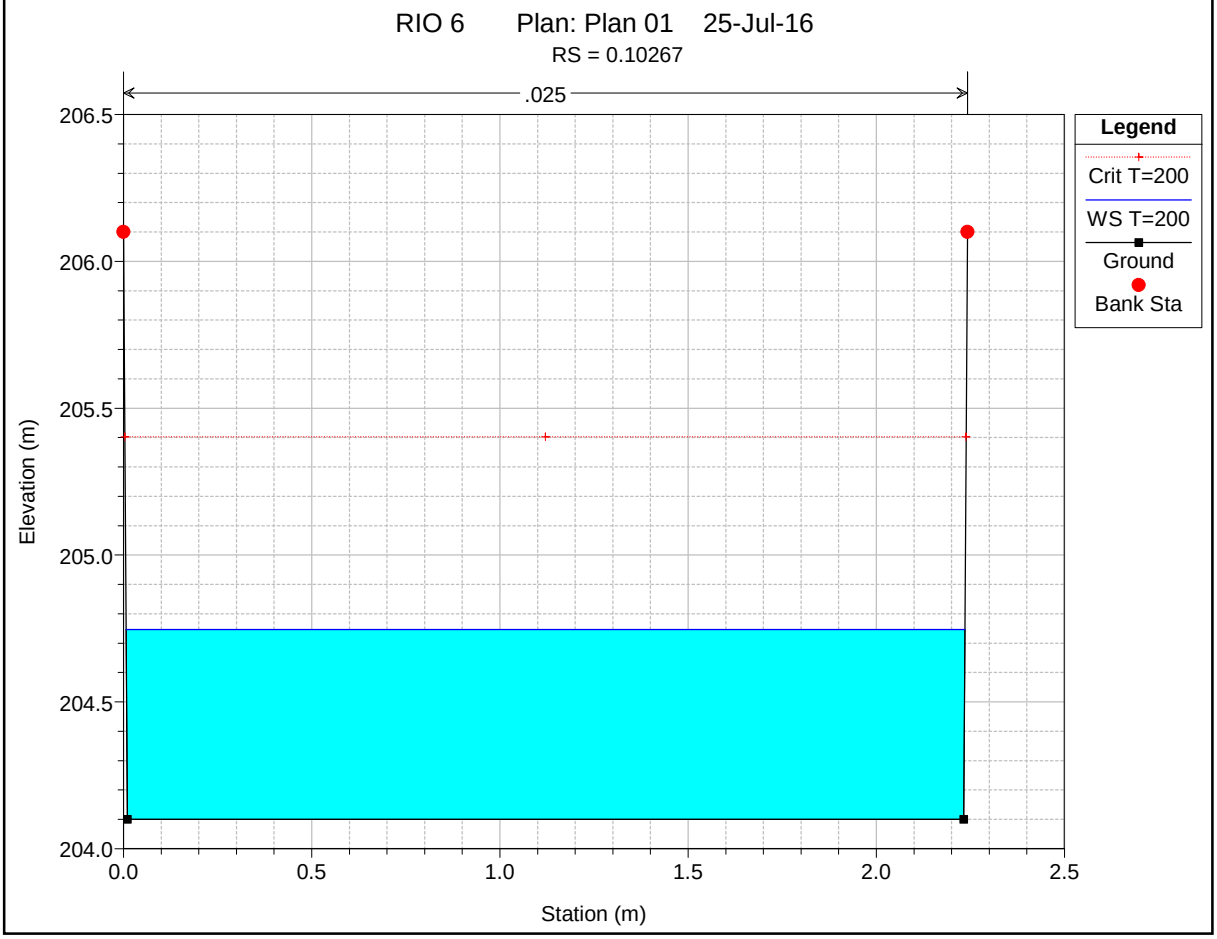

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.11053
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
207.0
206.5
206.0
205.5
205.0
204.5
0.0
0.5
1.0
1.5
2.0
2.5

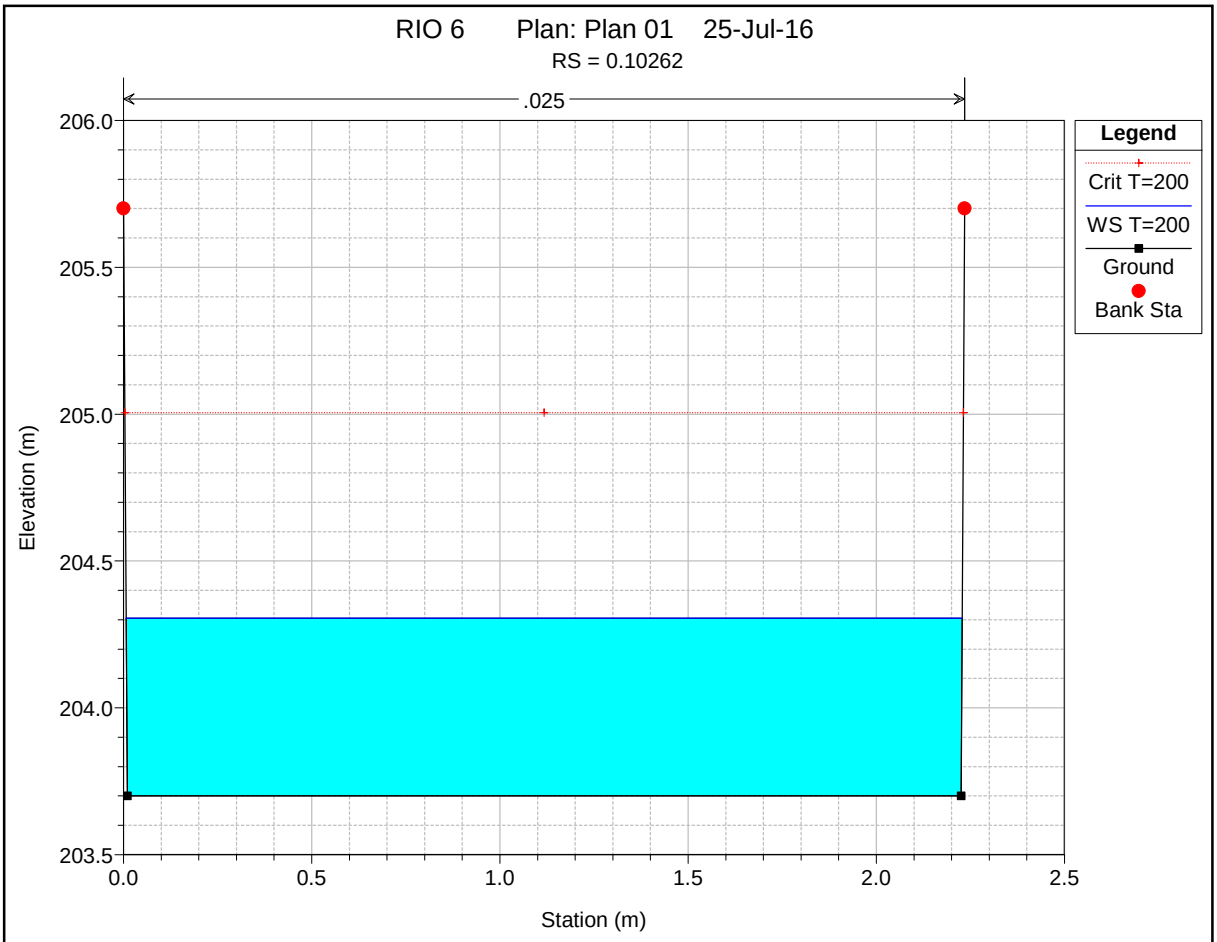

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10886
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
207.0
206.5
206.0
205.5
205.0
204.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0

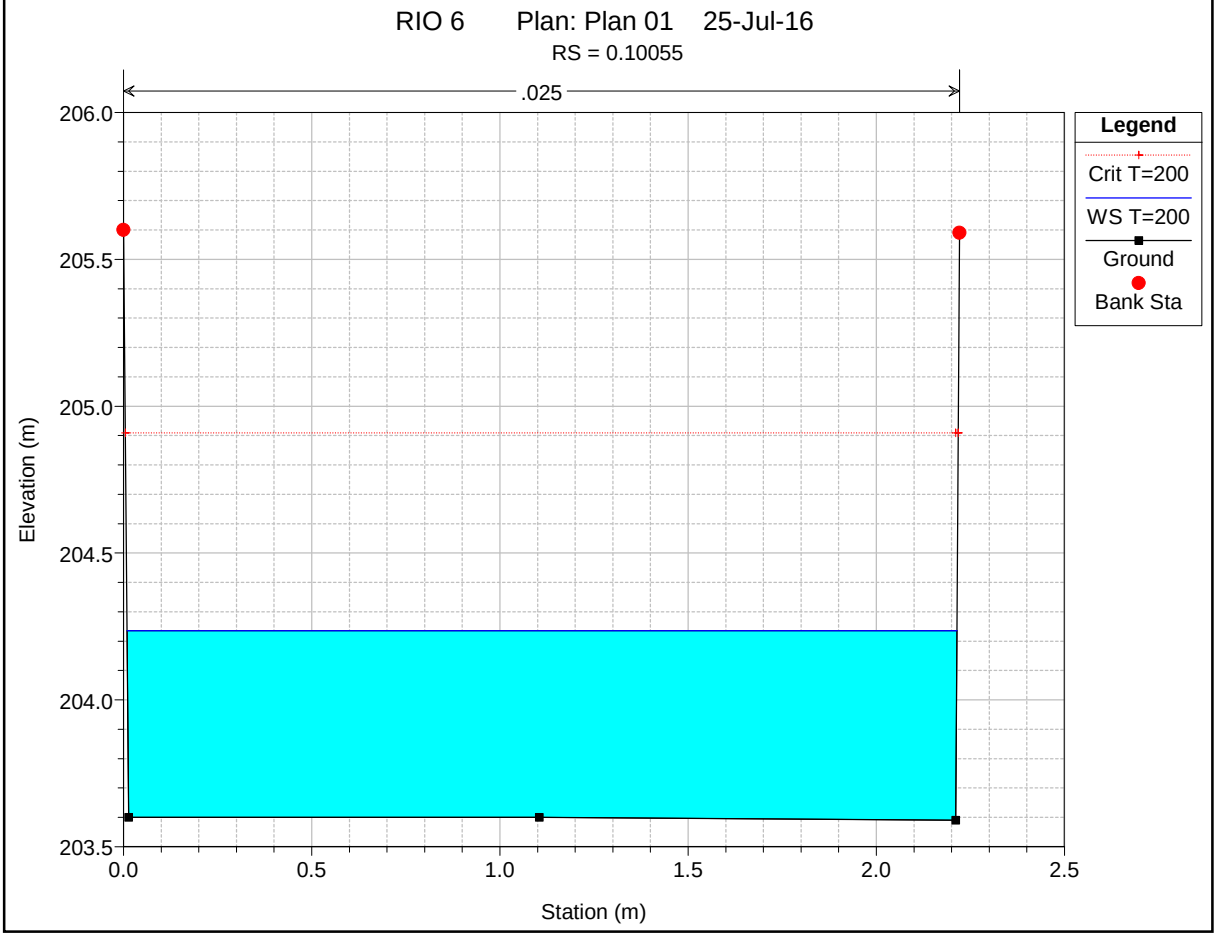

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10657
.025
207.0
206.5
206.0
205.5
205.0
204.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

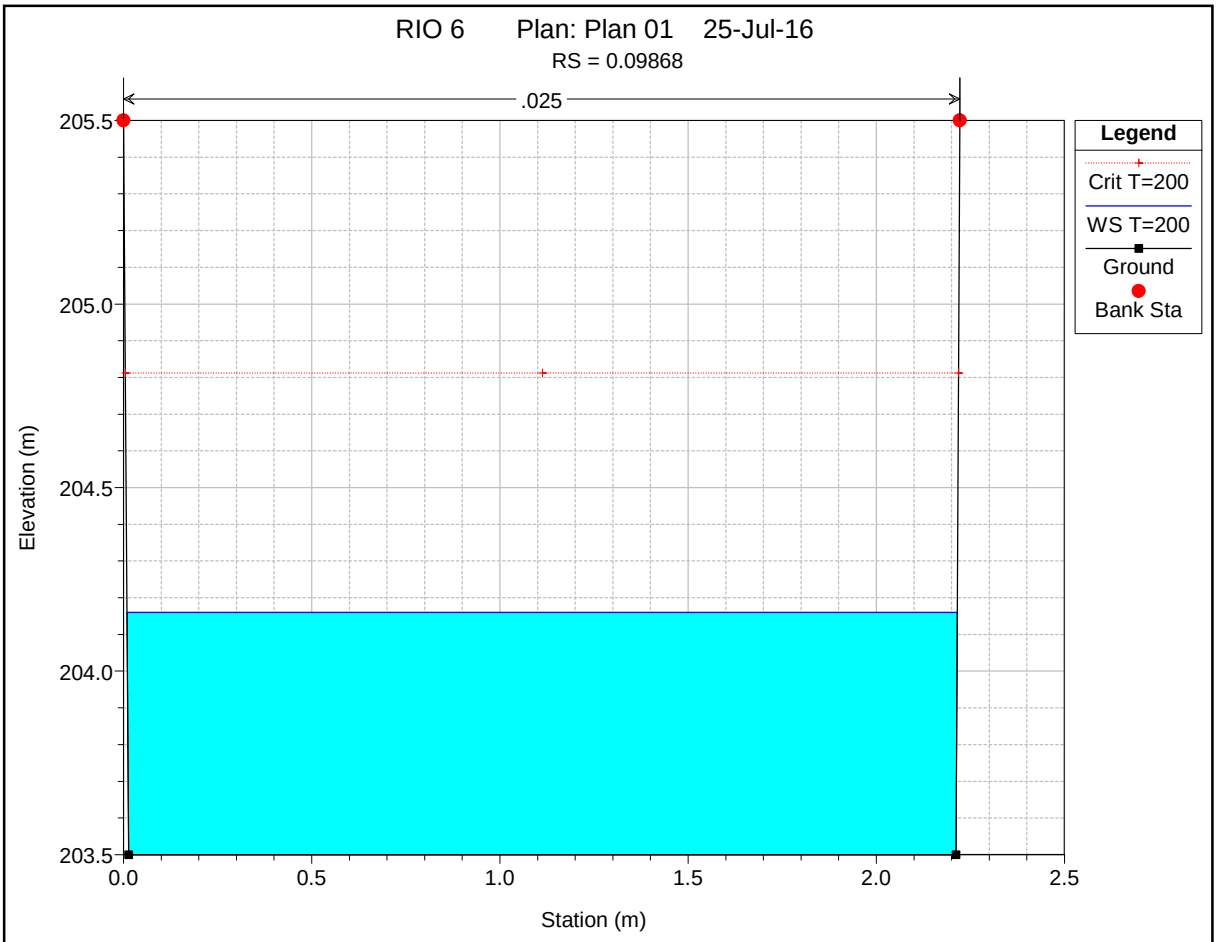

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10650
.025
206.5
206.0
205.5
205.0
204.5
204.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

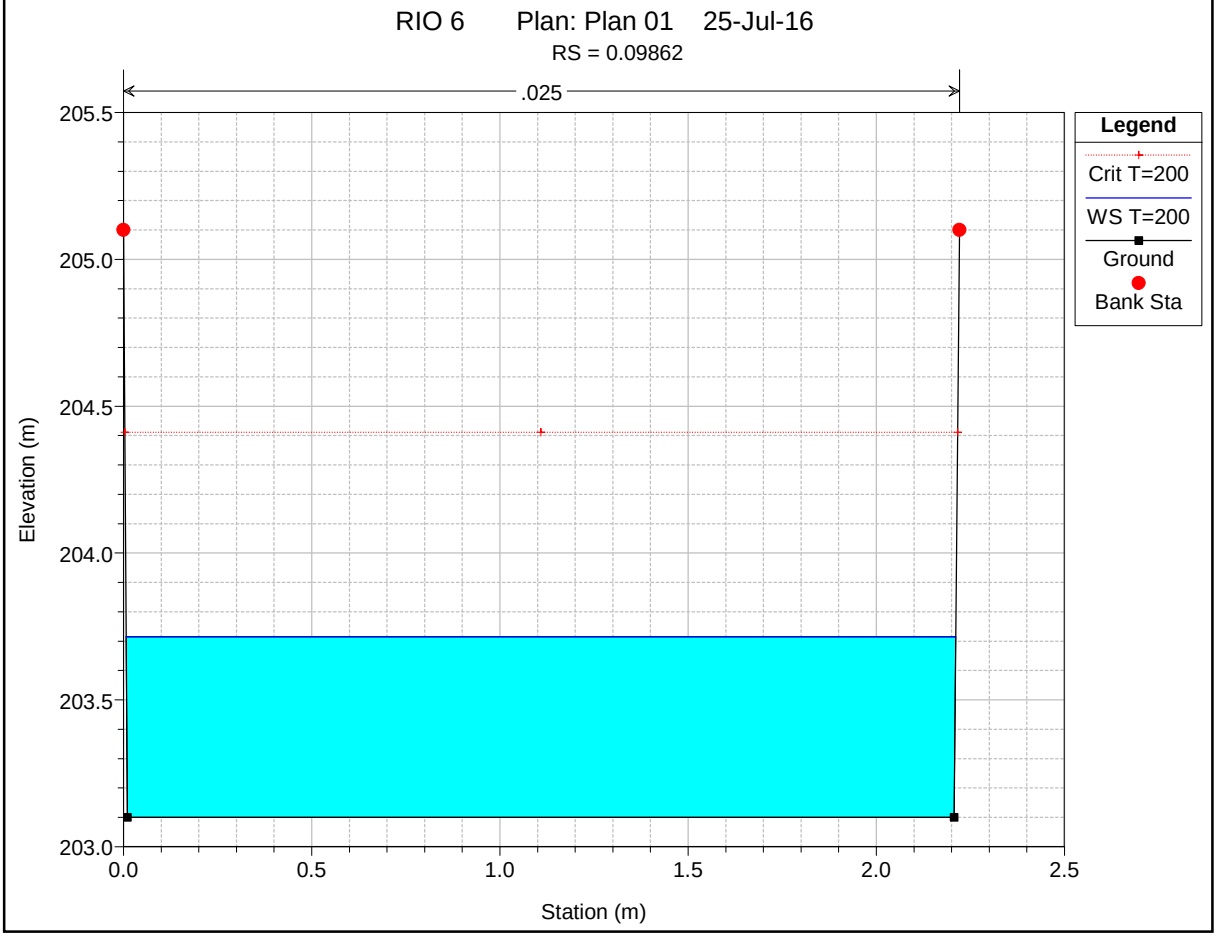

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10461
.025
206.5
206.0
205.5
205.0
204.5
204.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

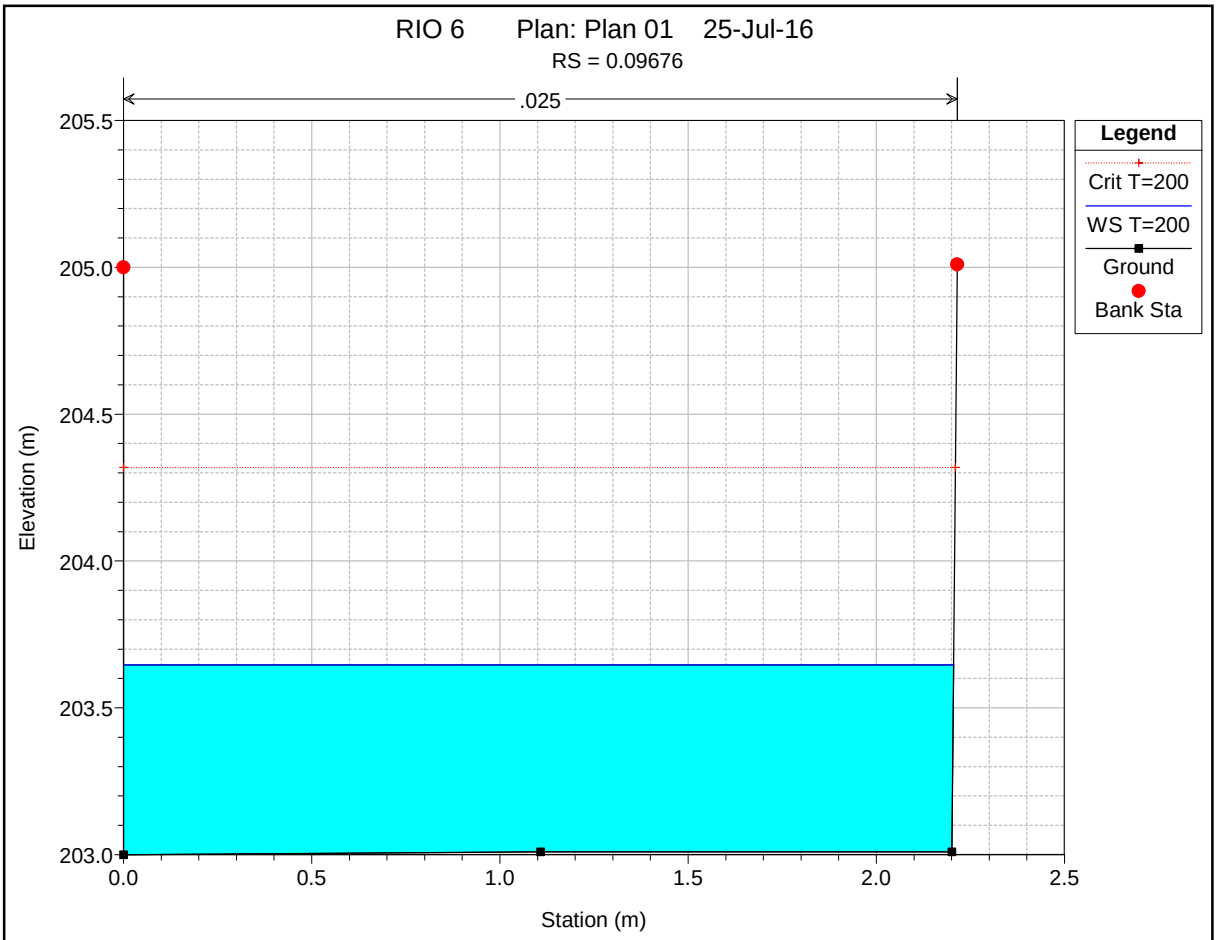

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10267
.025
206.5
206.0
205.5
205.0
204.5
204.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

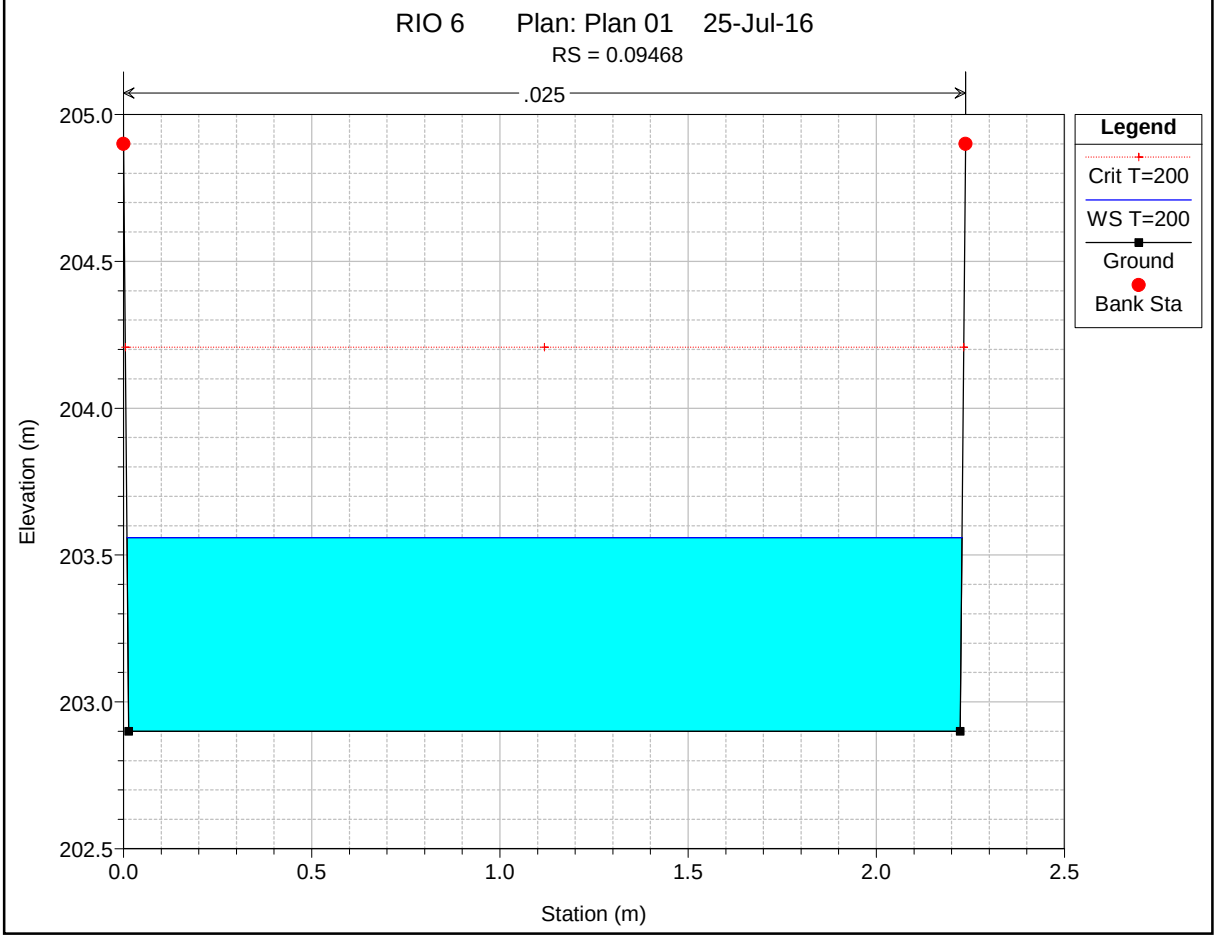

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10262
.025
206.0
205.5
205.0
204.5
204.0
203.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

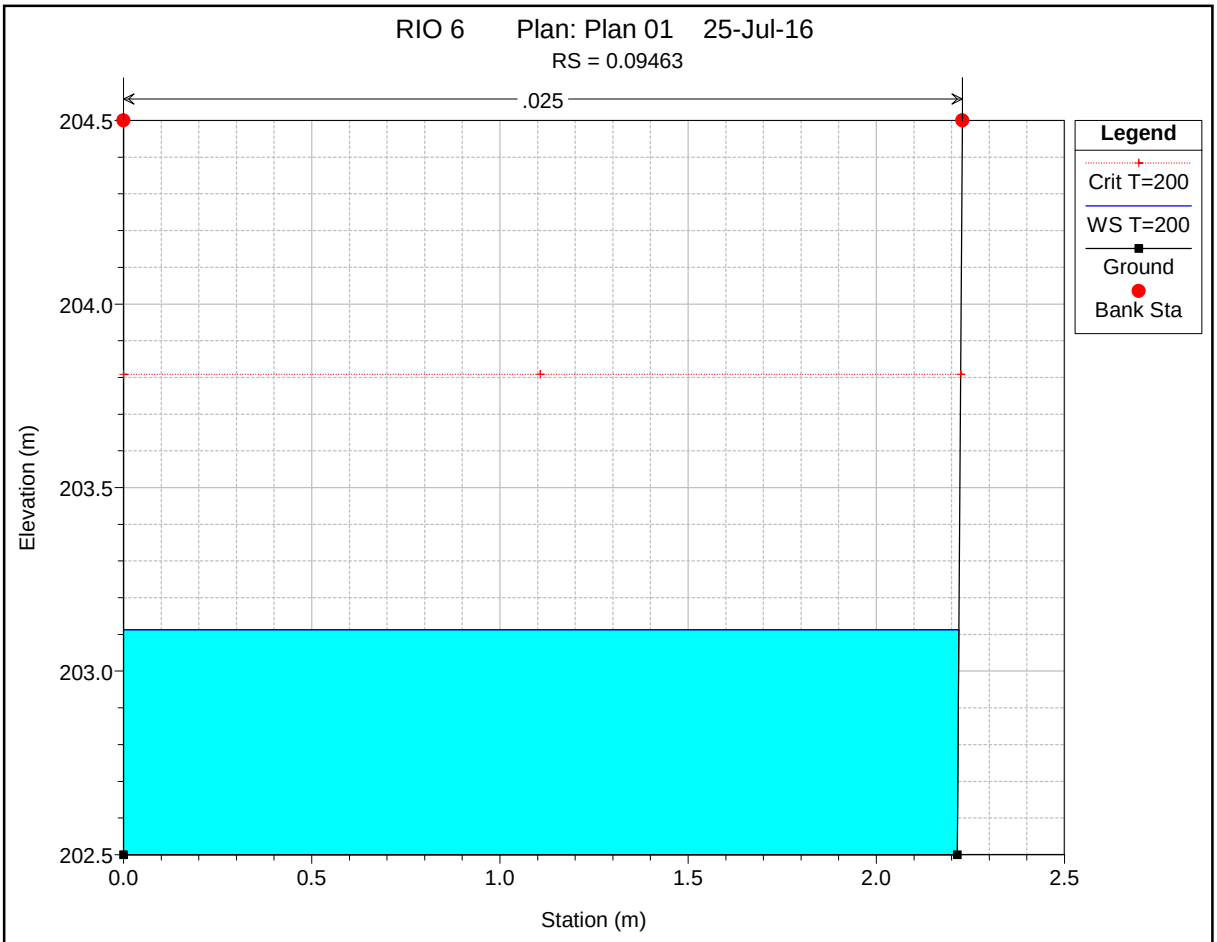

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.10055
.025
206.0
205.5
205.0
204.5
204.0
203.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

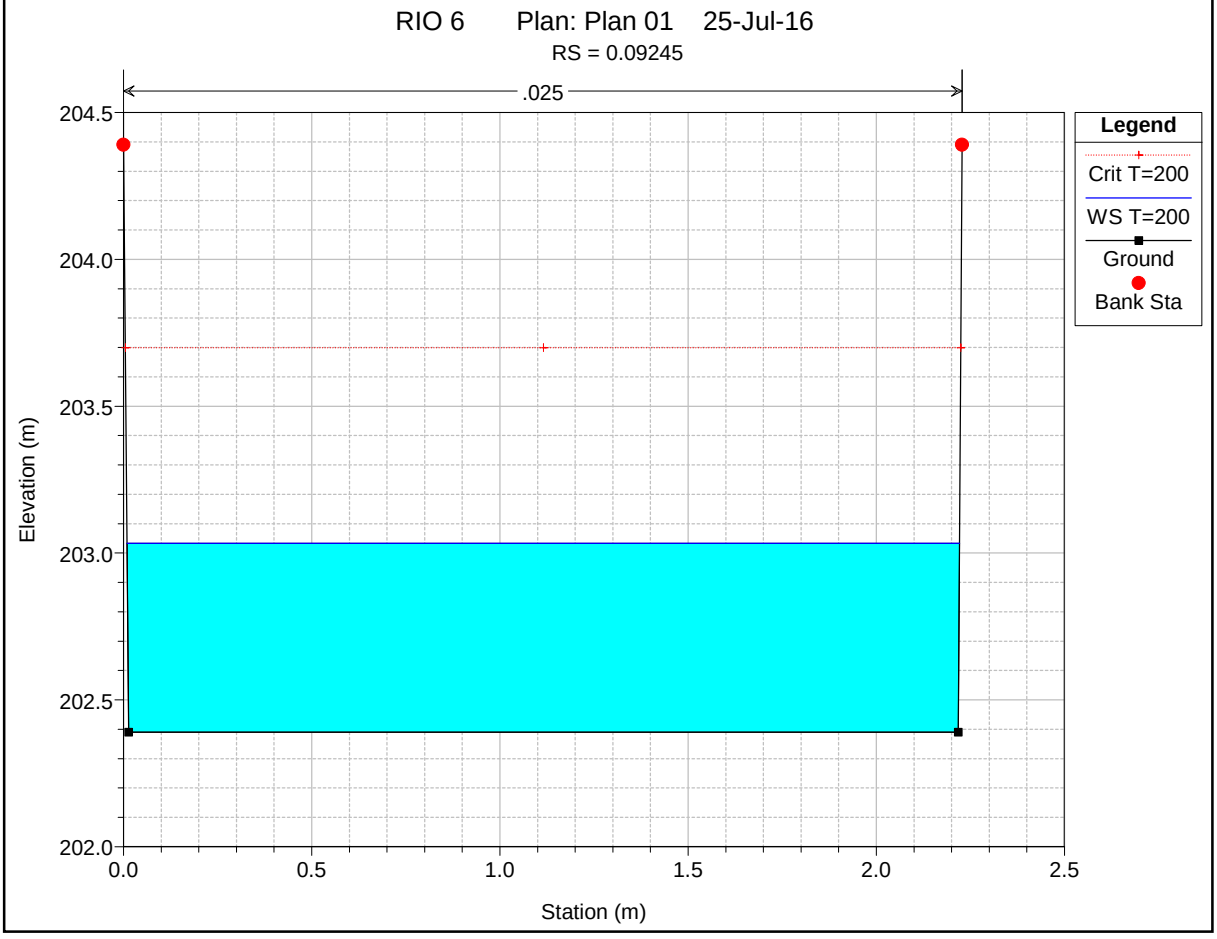

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09868
.025
205.5
205.0
204.5
204.0
203.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

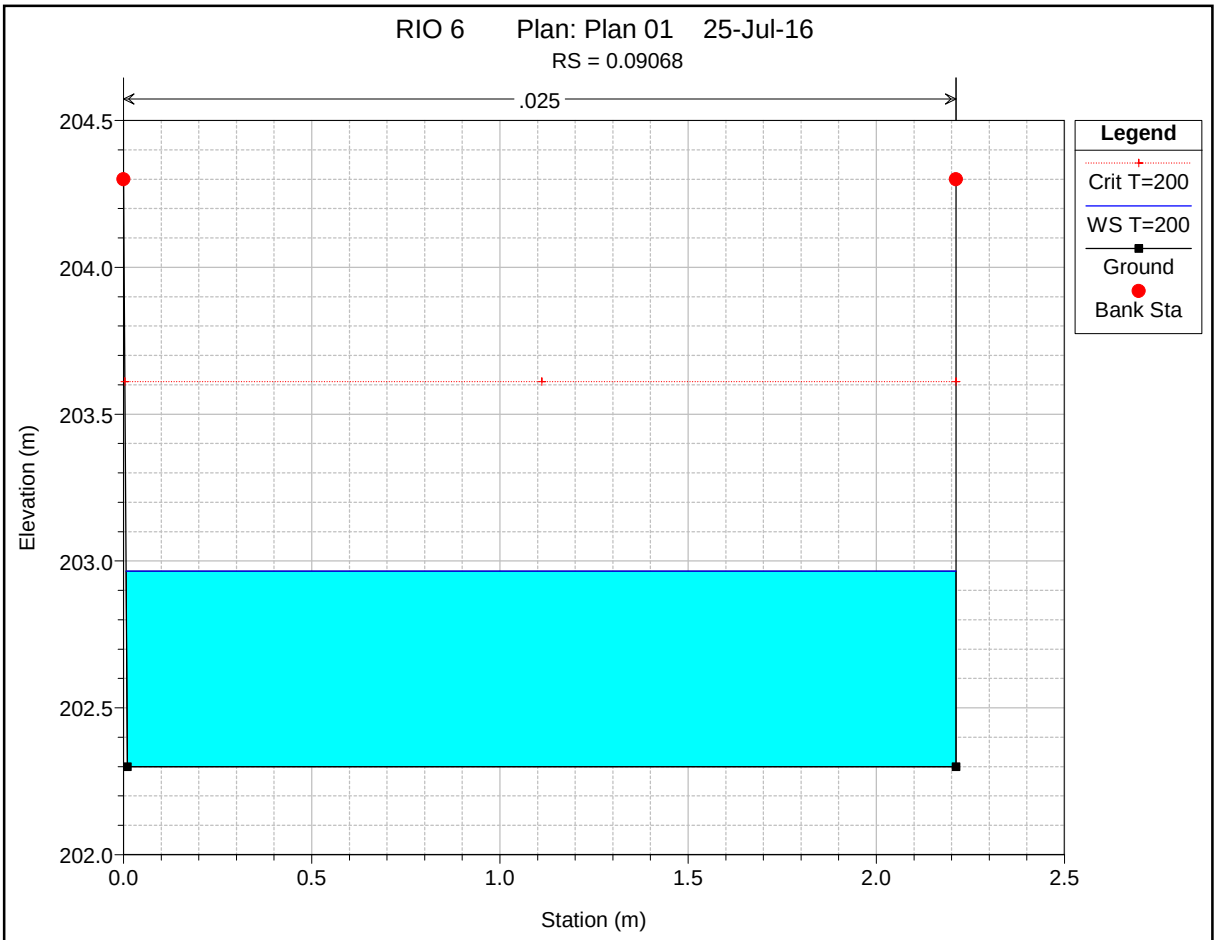

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09862
.025
205.5
205.0
204.5
204.0
203.5
203.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

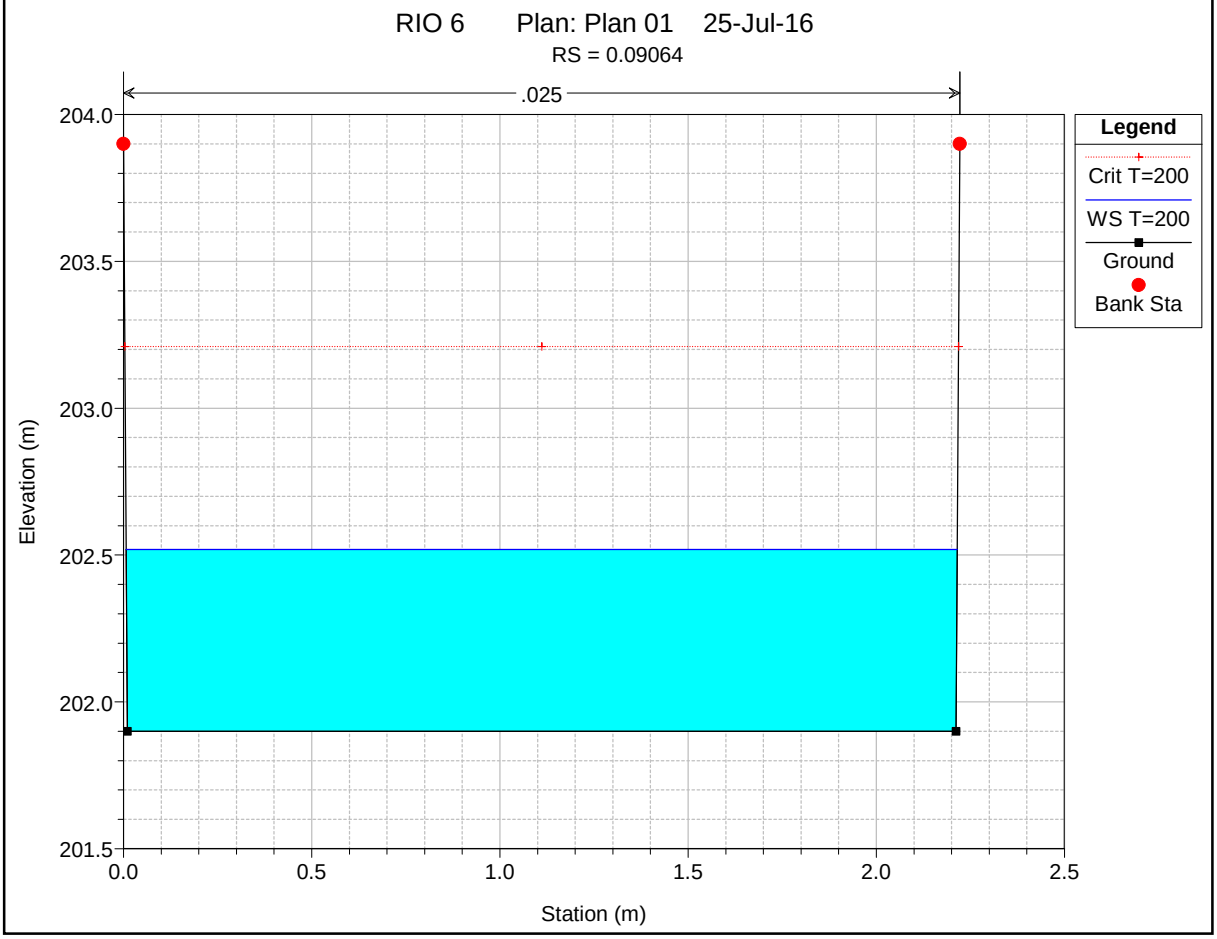

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09676
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
205.5
205.0
204.5
204.0
203.5
203.0
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

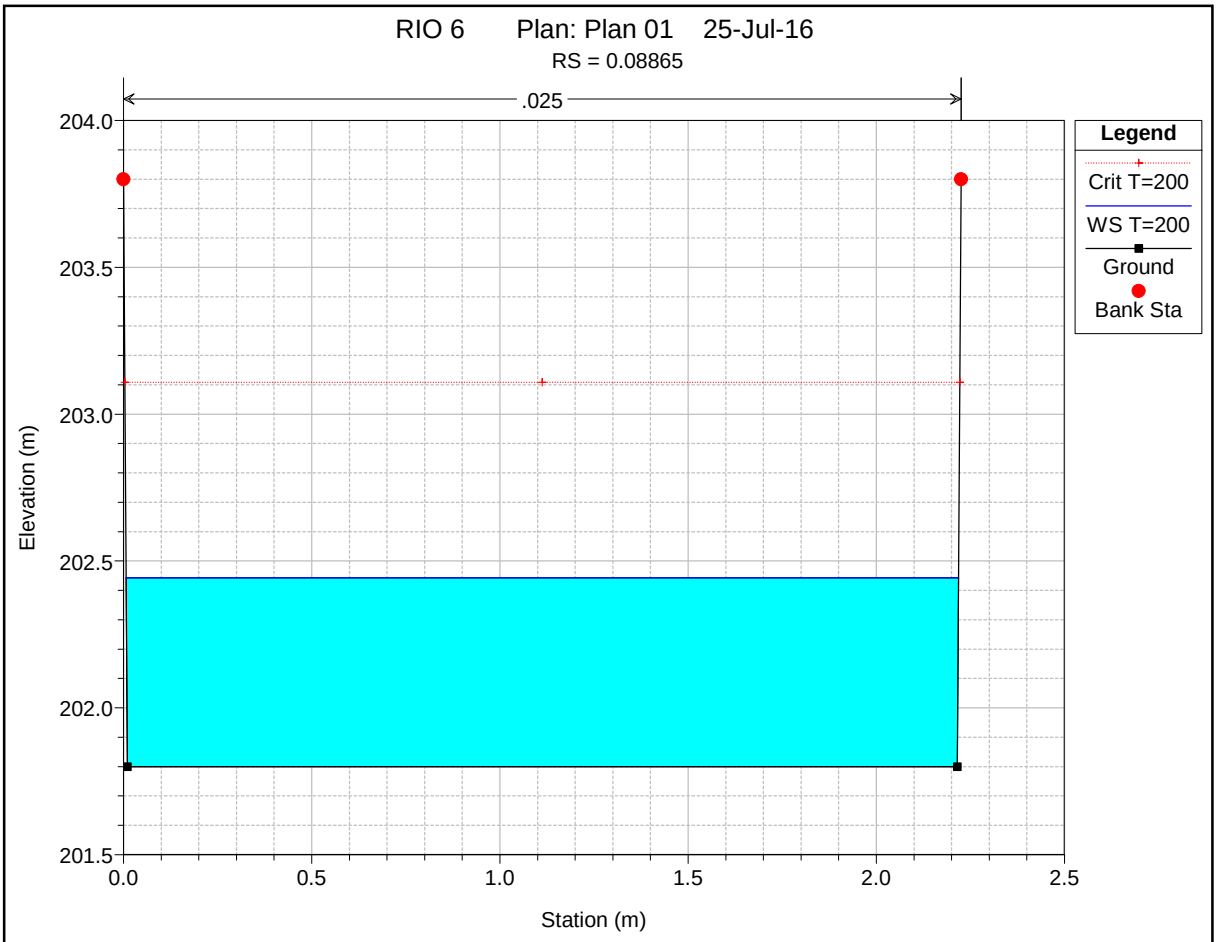

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09468
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
205.0
204.5
204.0
203.5
203.0
202.5
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

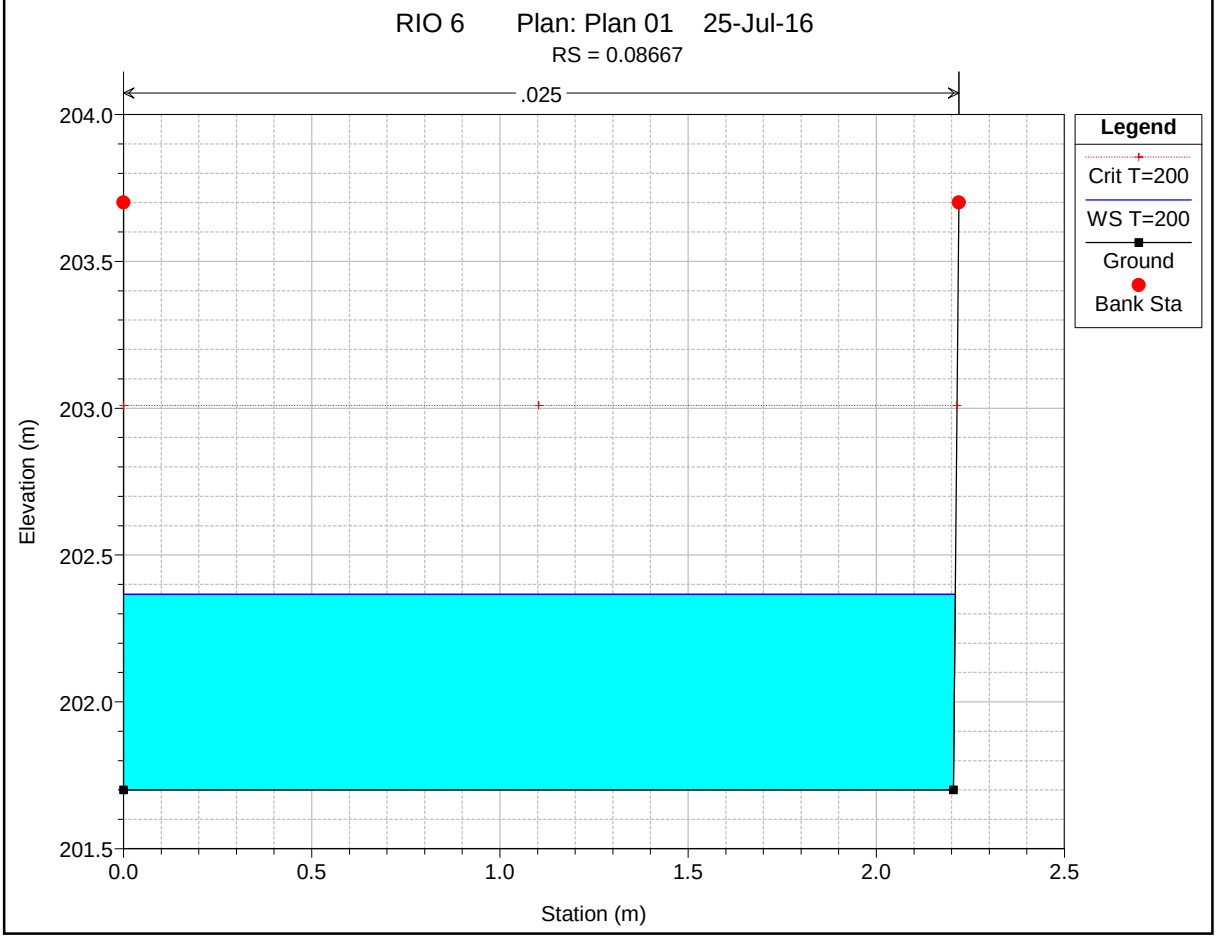

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09463
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
204.5
204.0
203.5
203.0
202.5
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

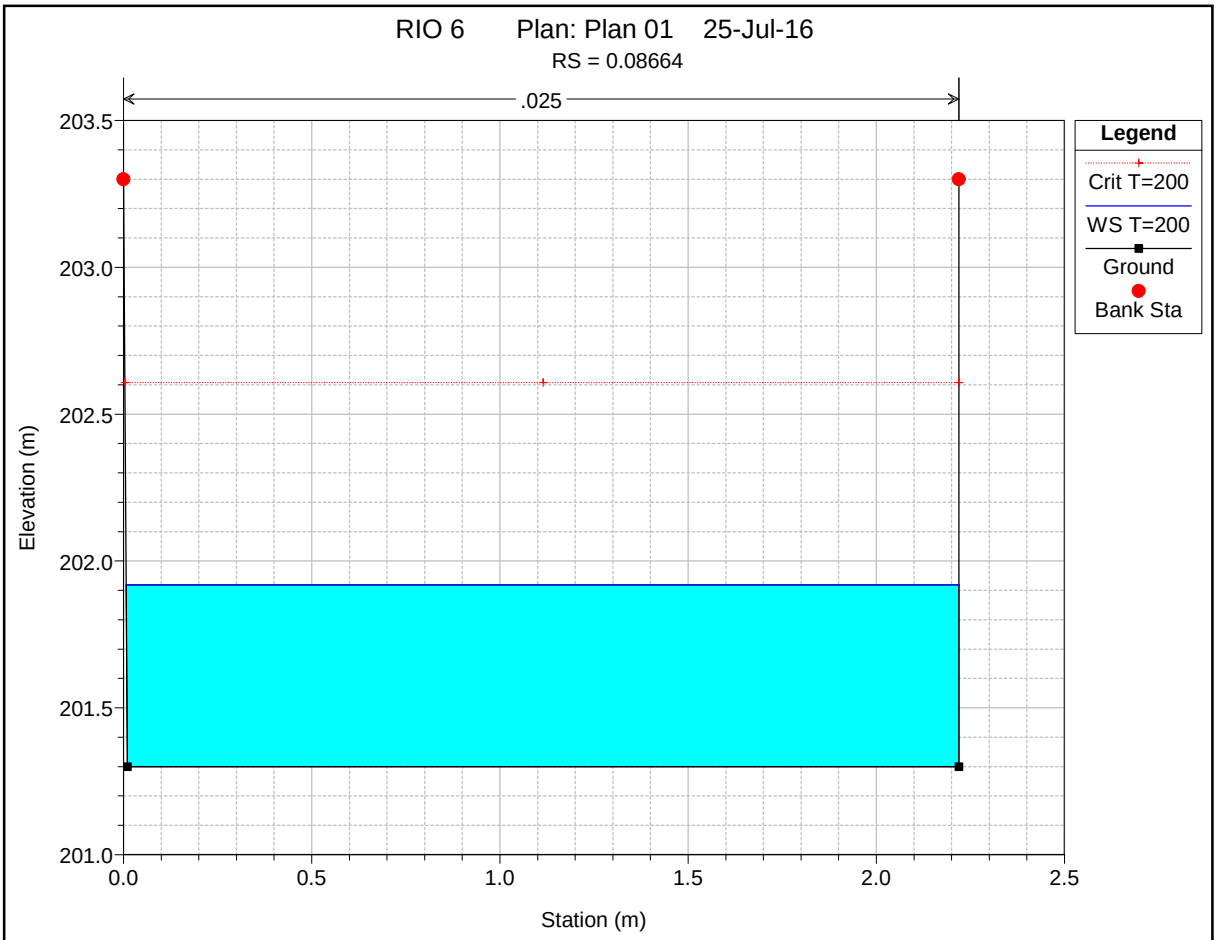

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09245
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
204.5
204.0
203.5
203.0
202.5
202.0
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)

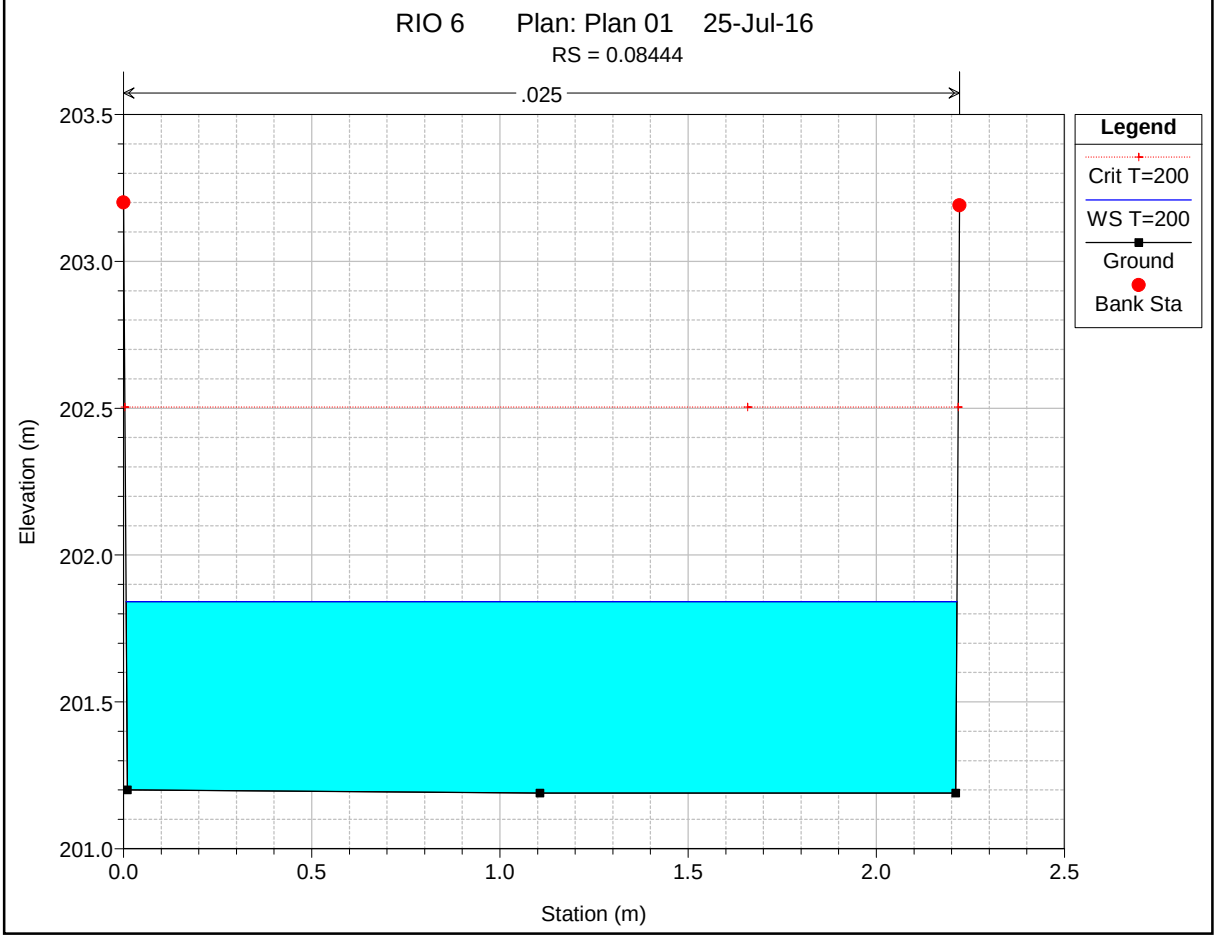

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09068
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.5
204.0
203.5
203.0
202.5
202.0
0.0
0.5
1.0
1.5
2.0
2.5

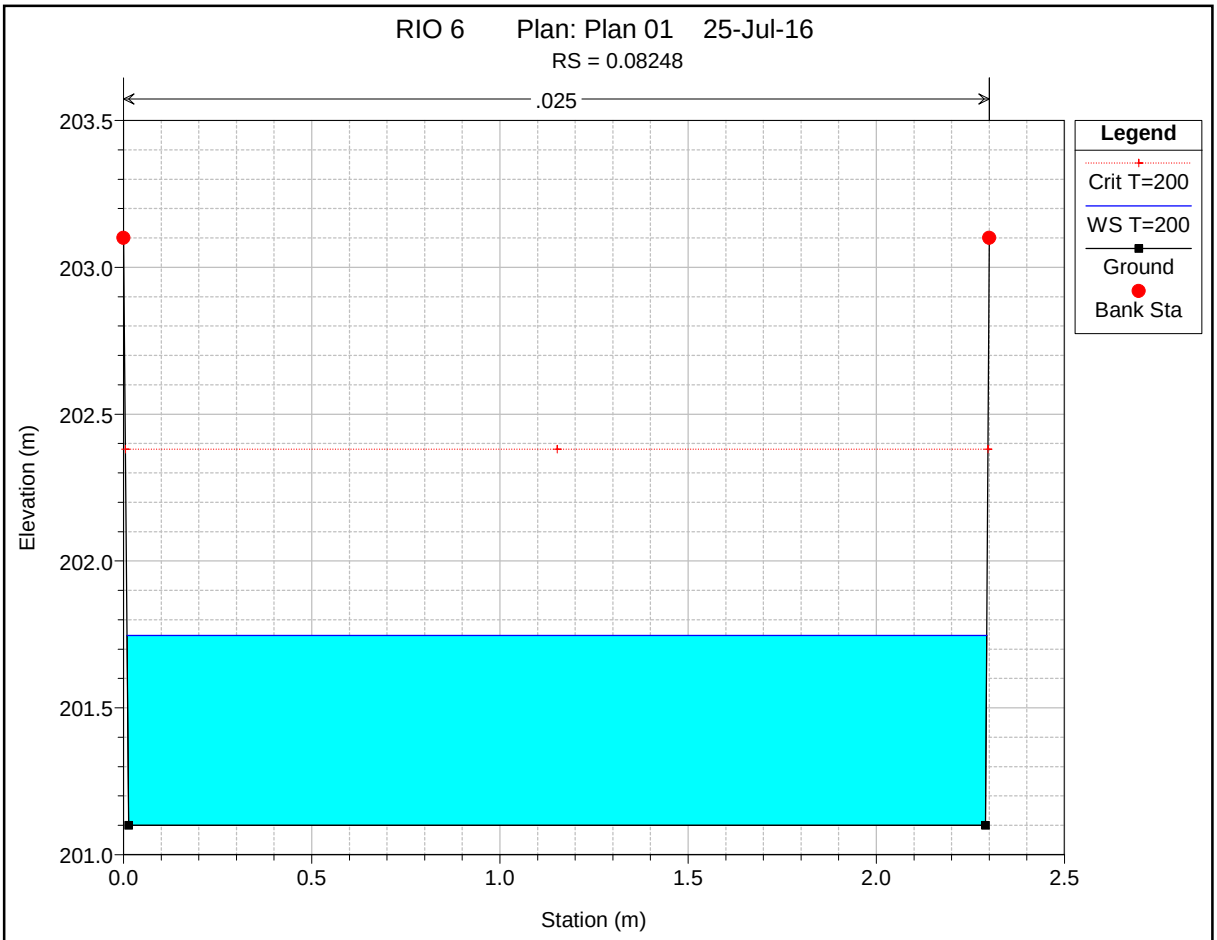

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.09064
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.0
203.5
203.0
202.5
202.0
201.5
0.0
0.5
1.0
1.5
2.0
2.5

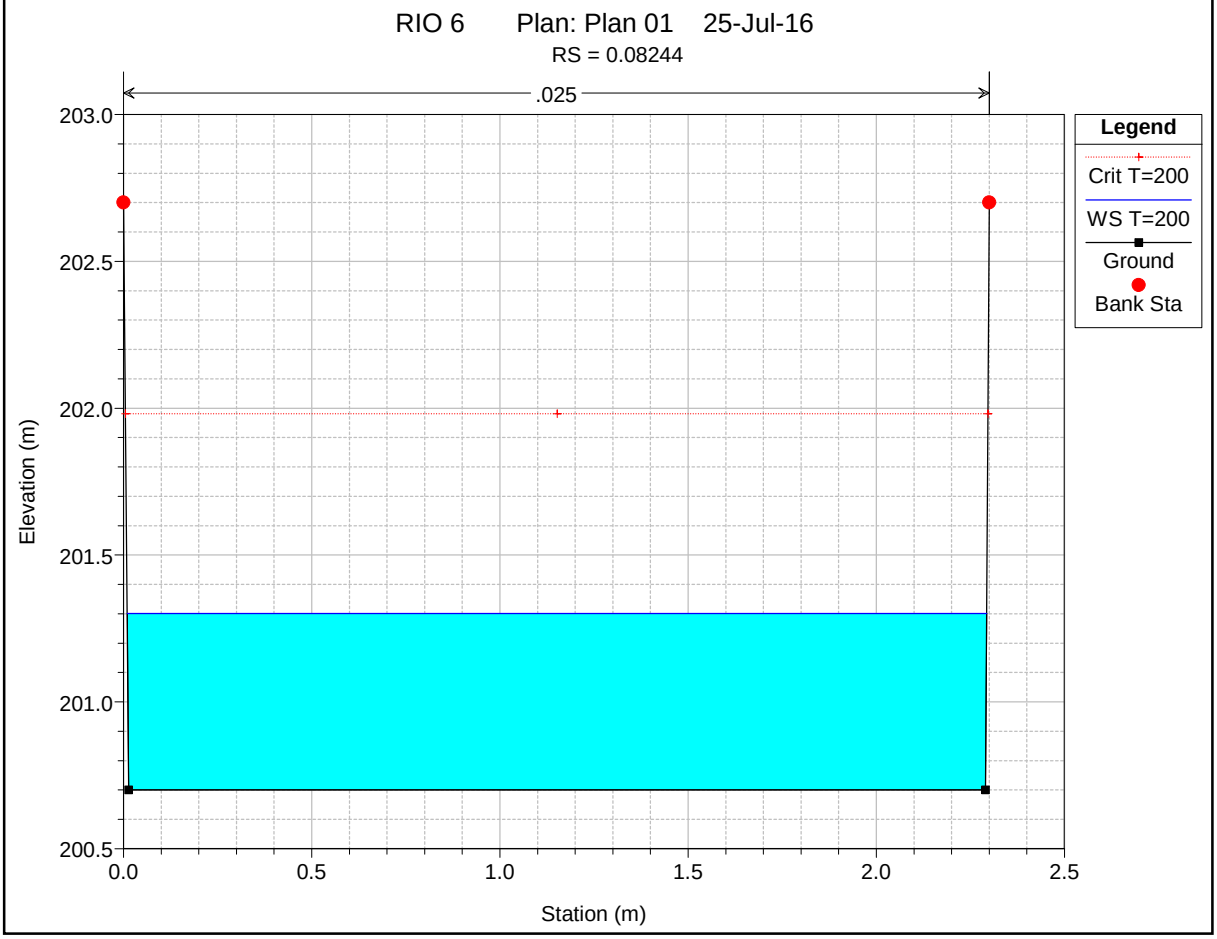

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08865
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.0
203.5
203.0
202.5
202.0
201.5
0.0
0.5
1.0
1.5
2.0
2.5

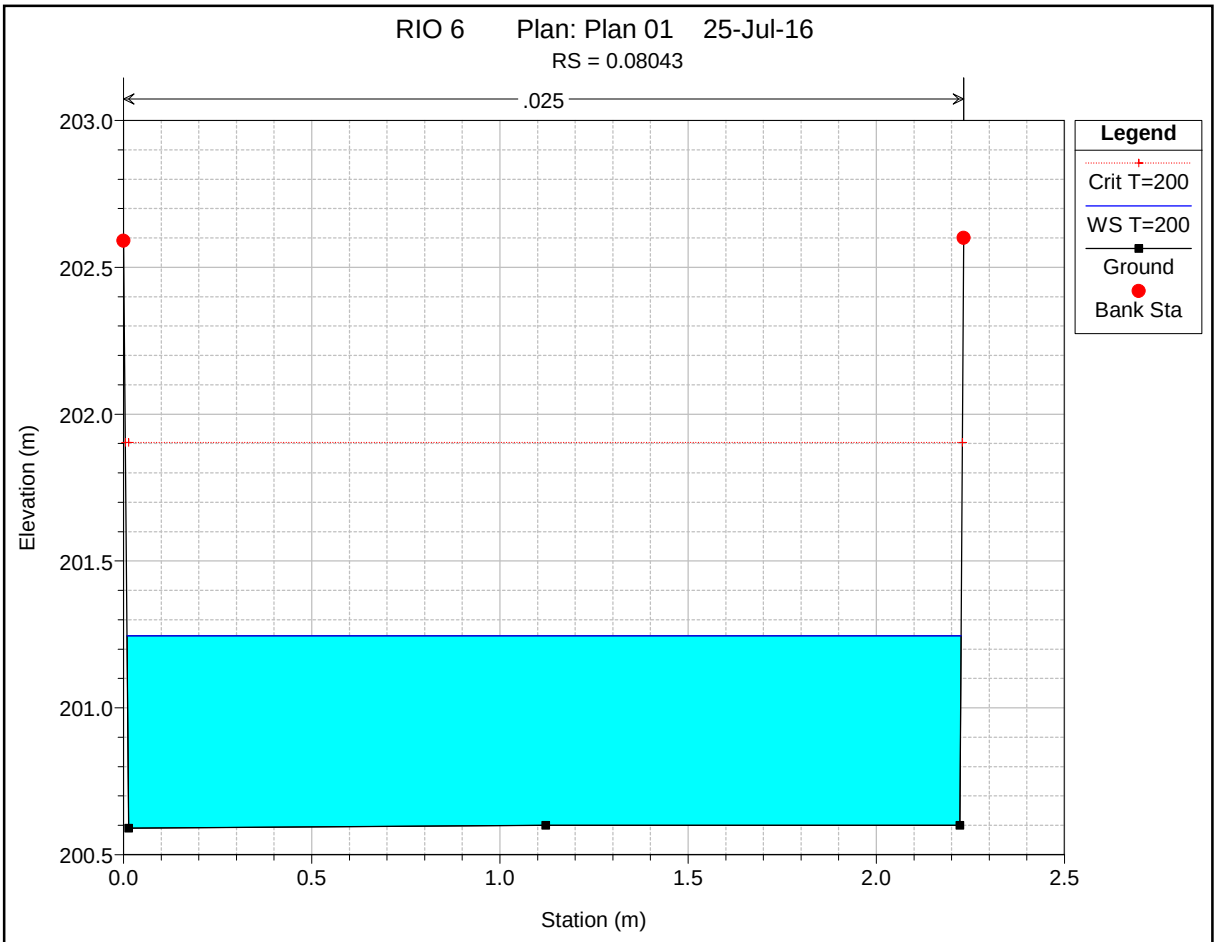

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08667
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
204.0
203.5
203.0
202.5
202.0
201.5
0.0
0.5
1.0
1.5
2.0
2.5

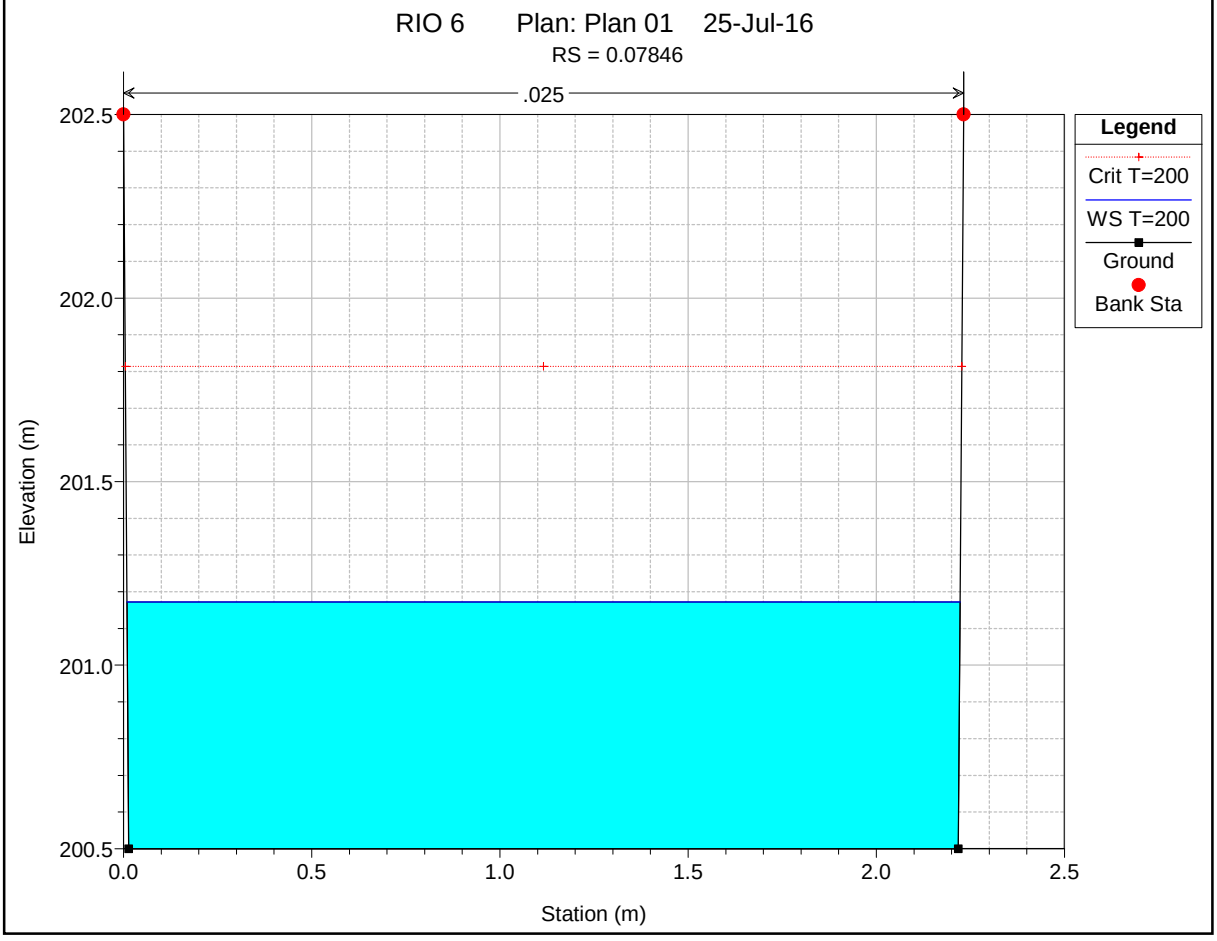

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08664
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.5
203.0
202.5
202.0
201.5
201.0
0.0
0.5
1.0
1.5
2.0
2.5

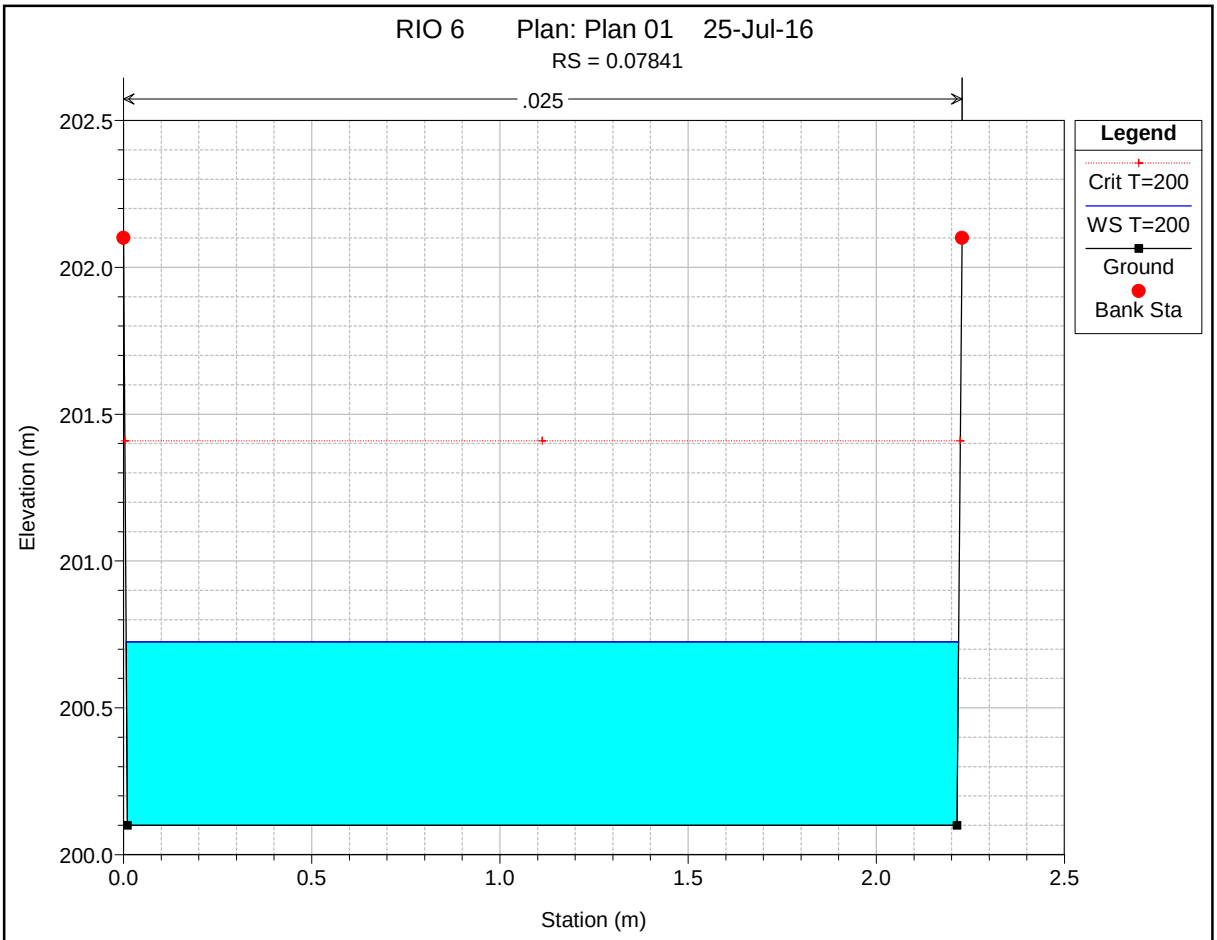

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08444
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.5
203.0
202.5
202.0
201.5
201.0
0.0
0.5
1.0
1.5
2.0
2.5

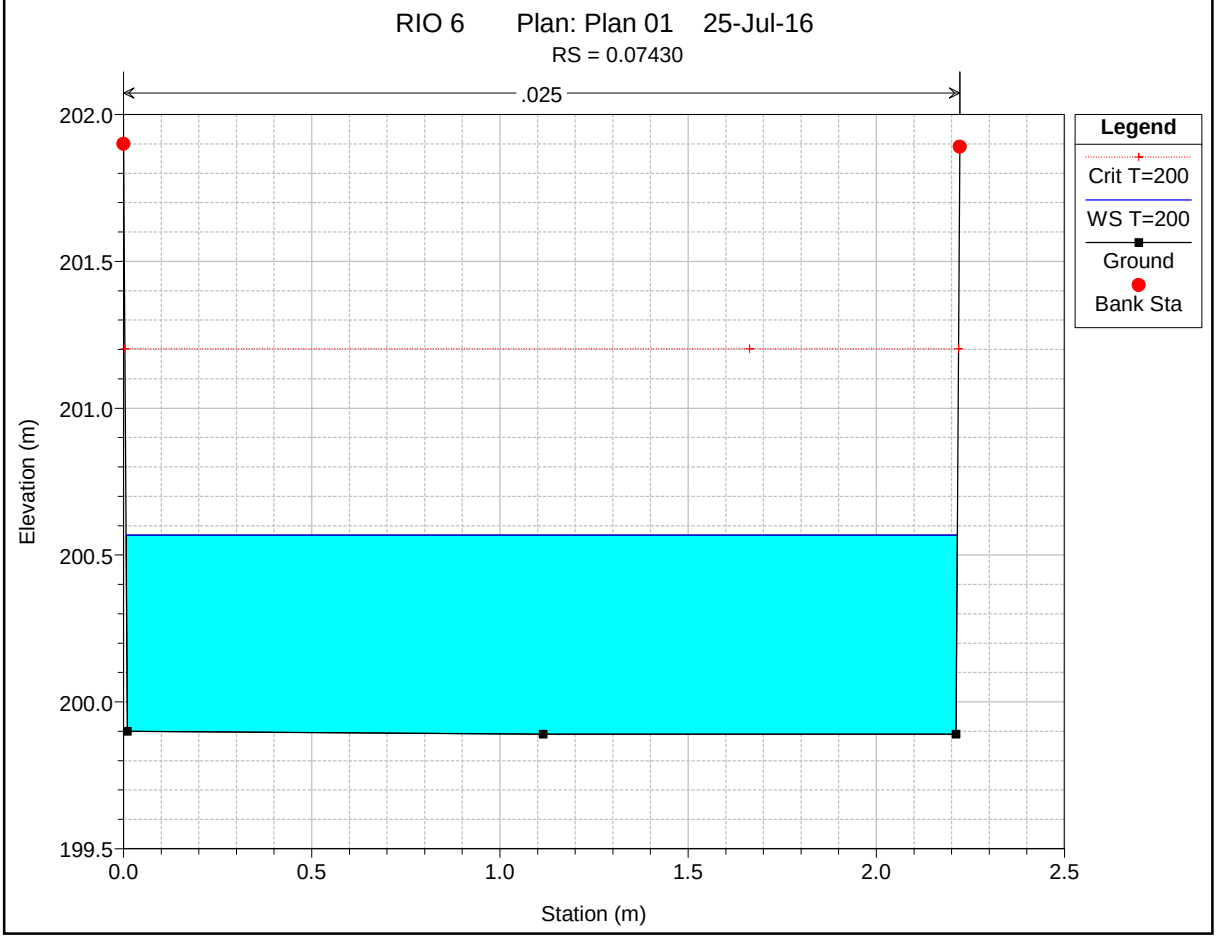

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08248
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.5
203.0
202.5
202.0
201.5
201.0
0.0
0.5
1.0
1.5
2.0
2.5

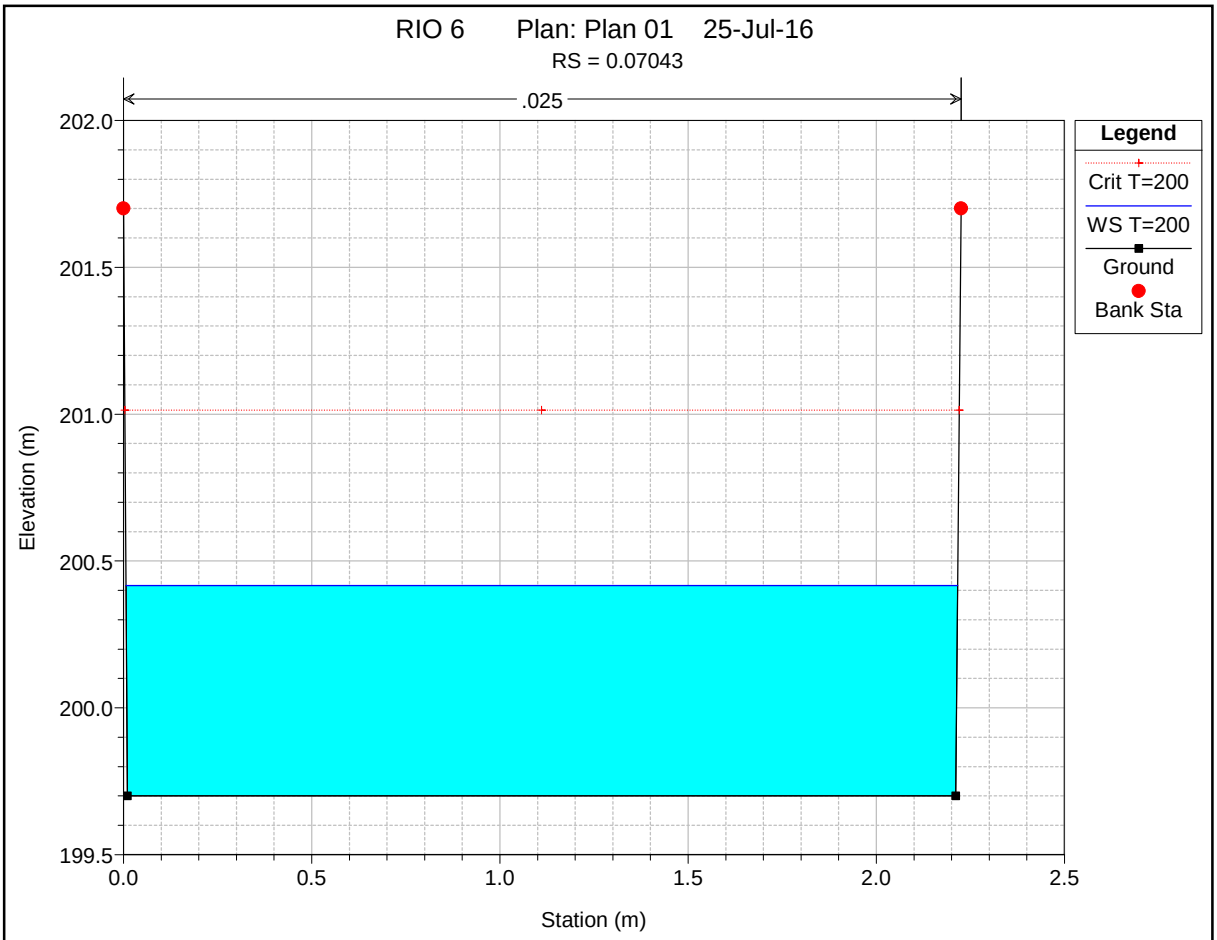

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08244
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.0
202.5
202.0
201.5
201.0
200.5
0.0
0.5
1.0
1.5
2.0
2.5

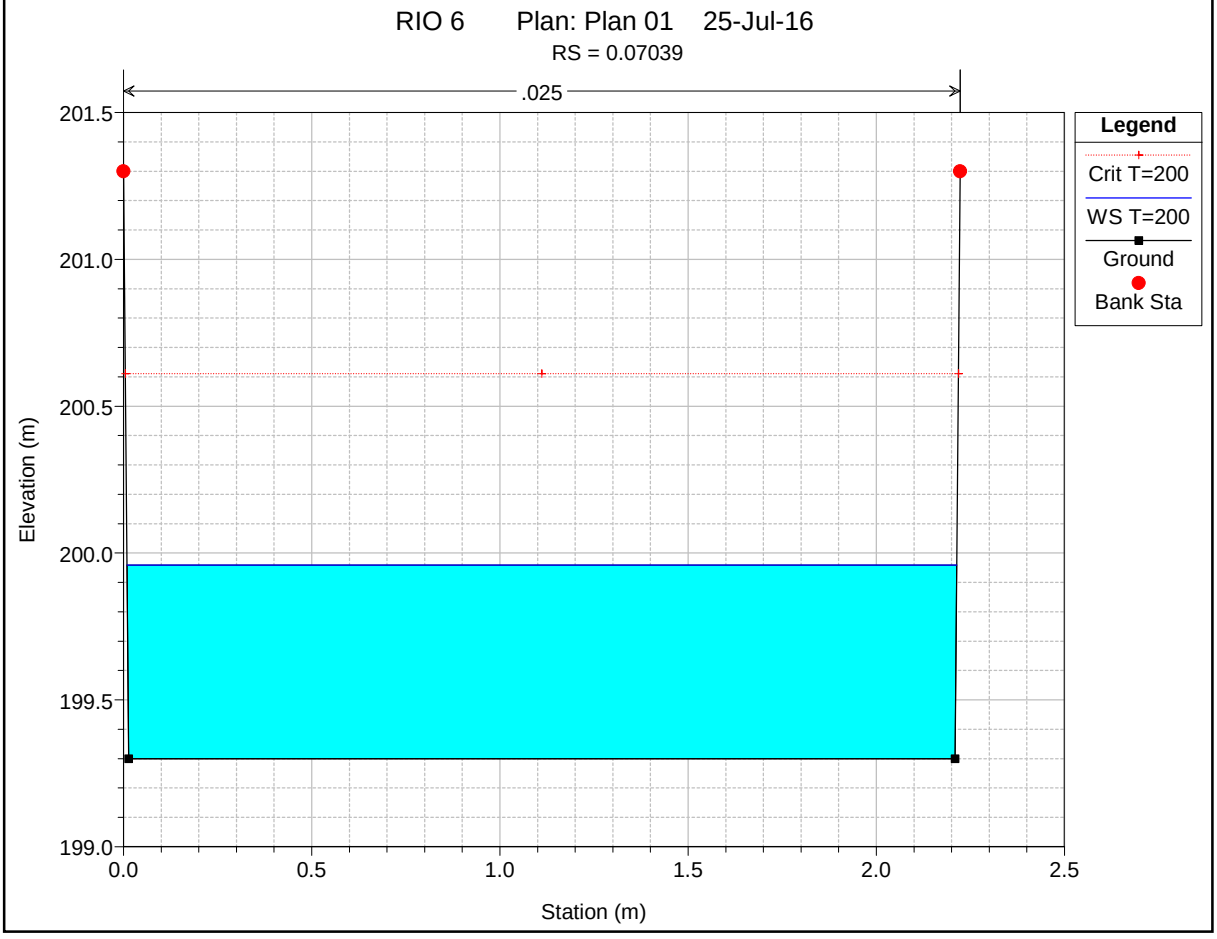

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.08043
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
203.0
202.5
202.0
201.5
201.0
200.5
0.0
0.5
1.0
1.5
2.0
2.5

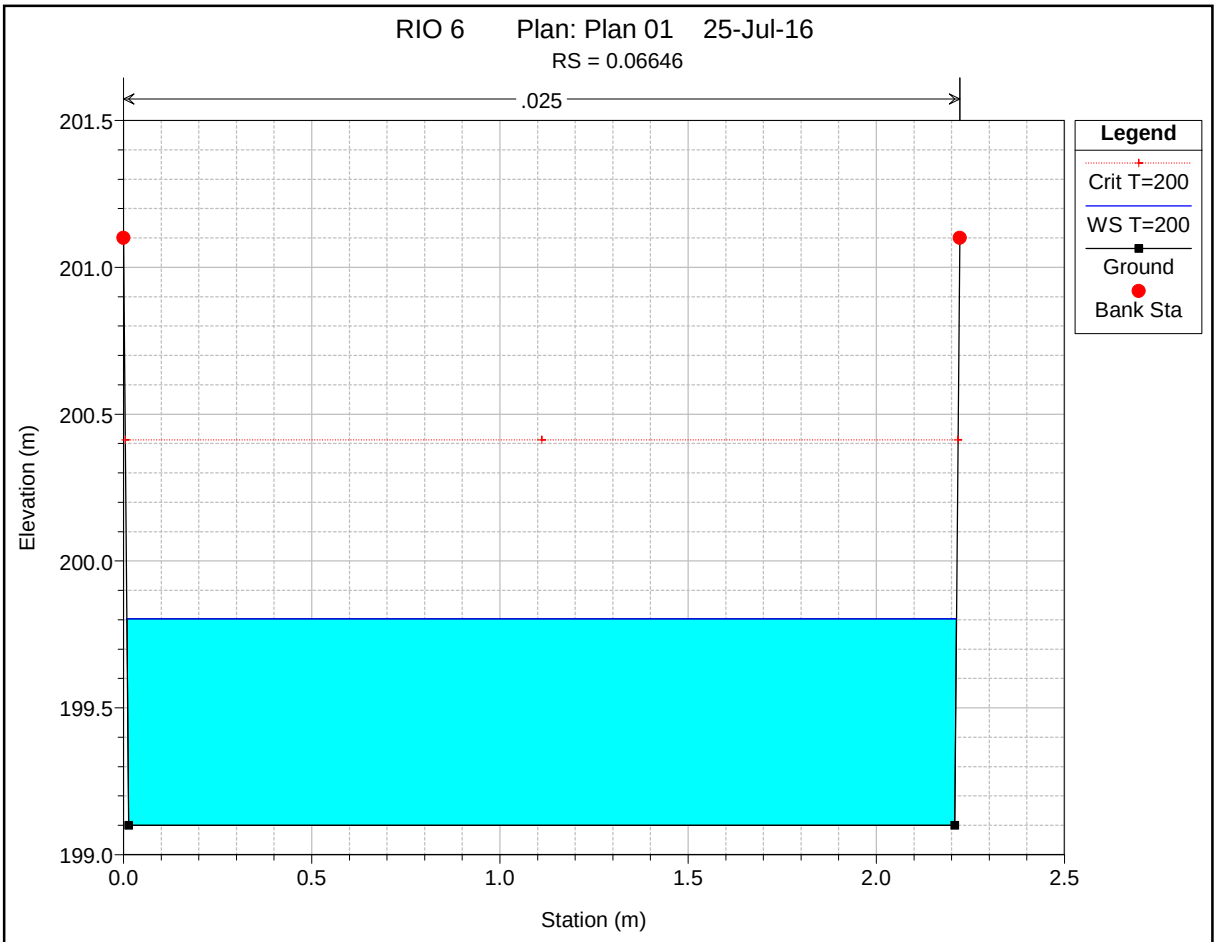

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07846
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202.5
202.0
201.5
201.0
200.5
0.0
0.5
1.0
1.5
2.0
2.5

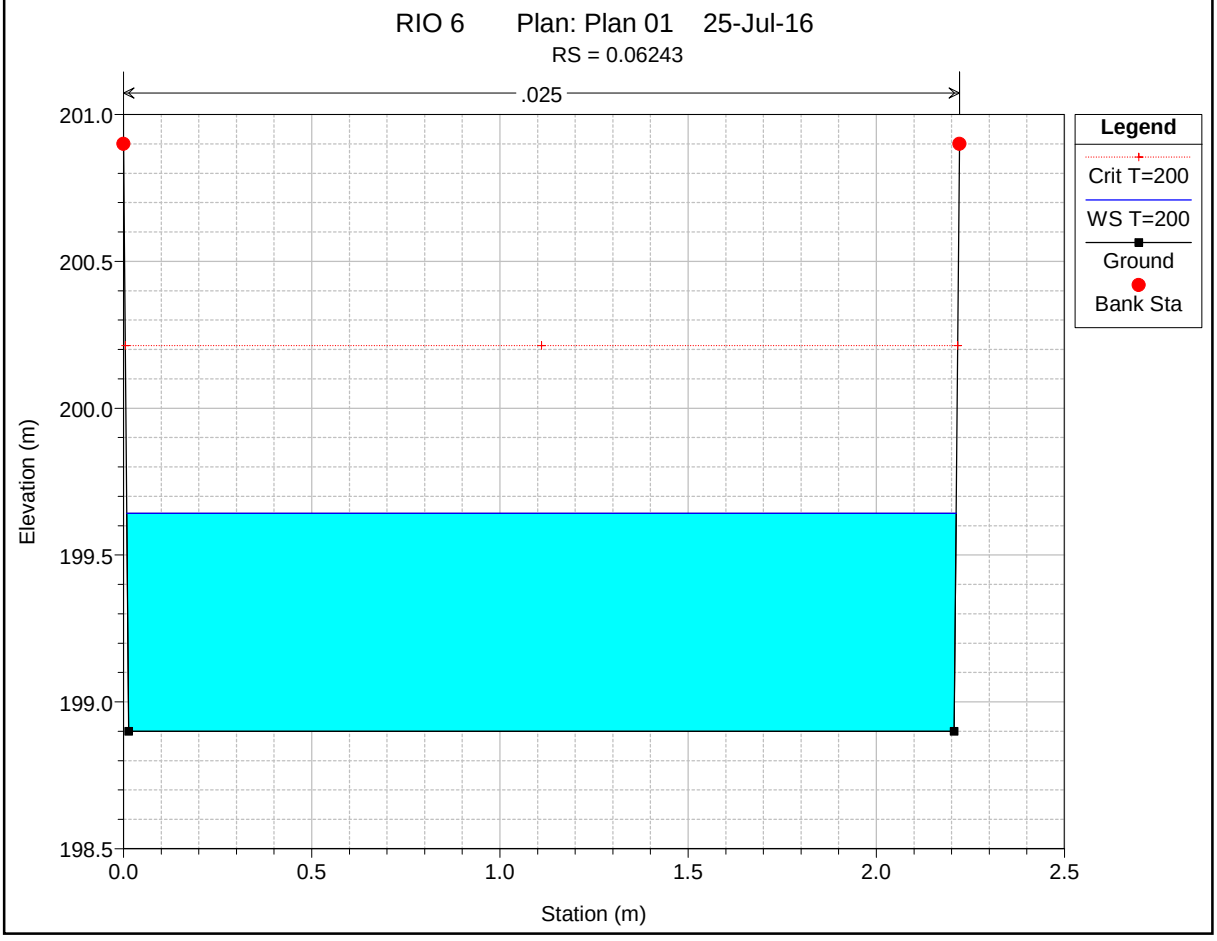

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07841
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202.5
202.0
201.5
201.0
200.5
200.0
0.0
0.5
1.0
1.5
2.0
2.5

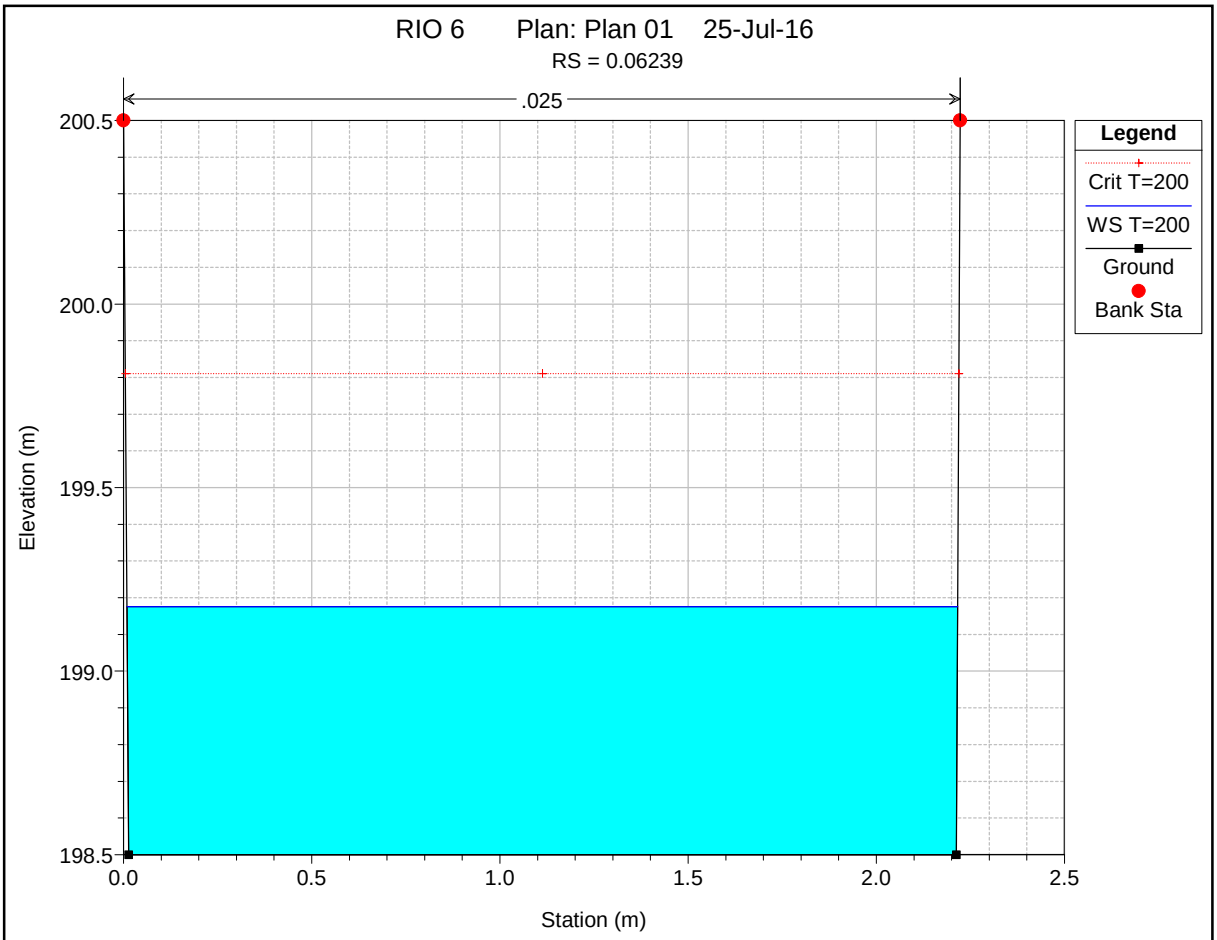

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07430
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
202.0
201.5
201.0
200.5
200.0
199.5
0.0
0.5
1.0
1.5
2.0
2.5

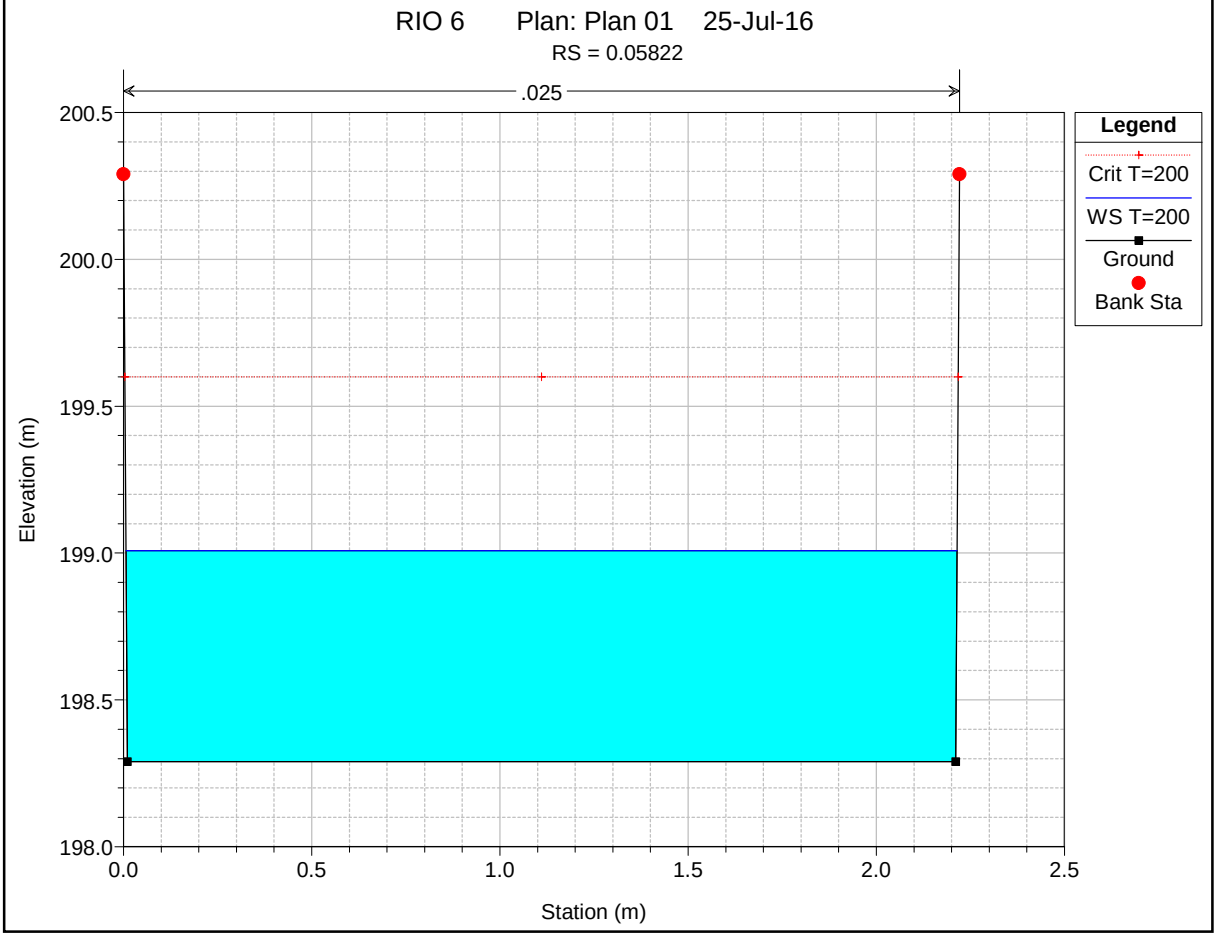

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07043
.025
202.0
201.5
201.0
200.5
200.0
199.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

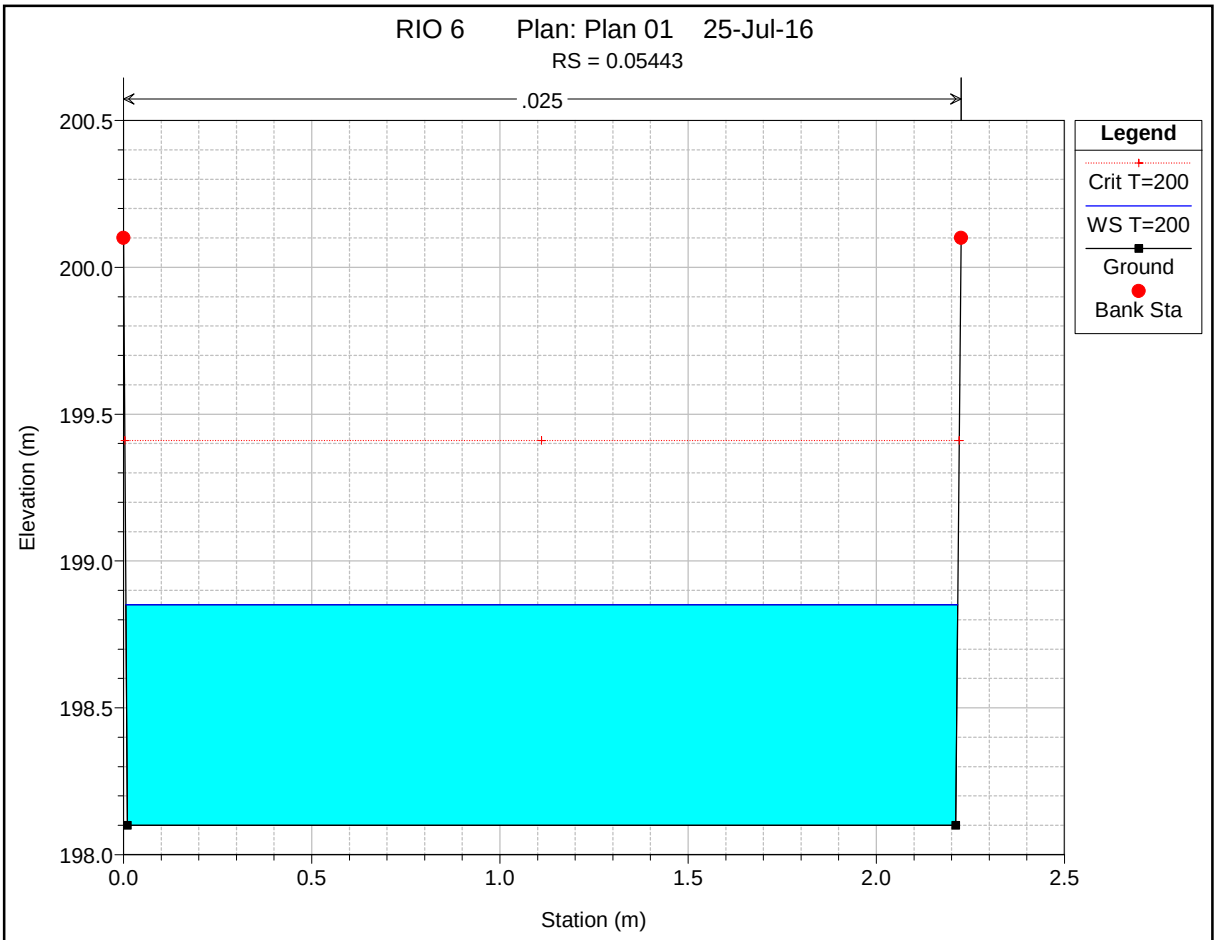

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.07039
.025
201.5
201.0
200.5
200.0
199.5
199.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

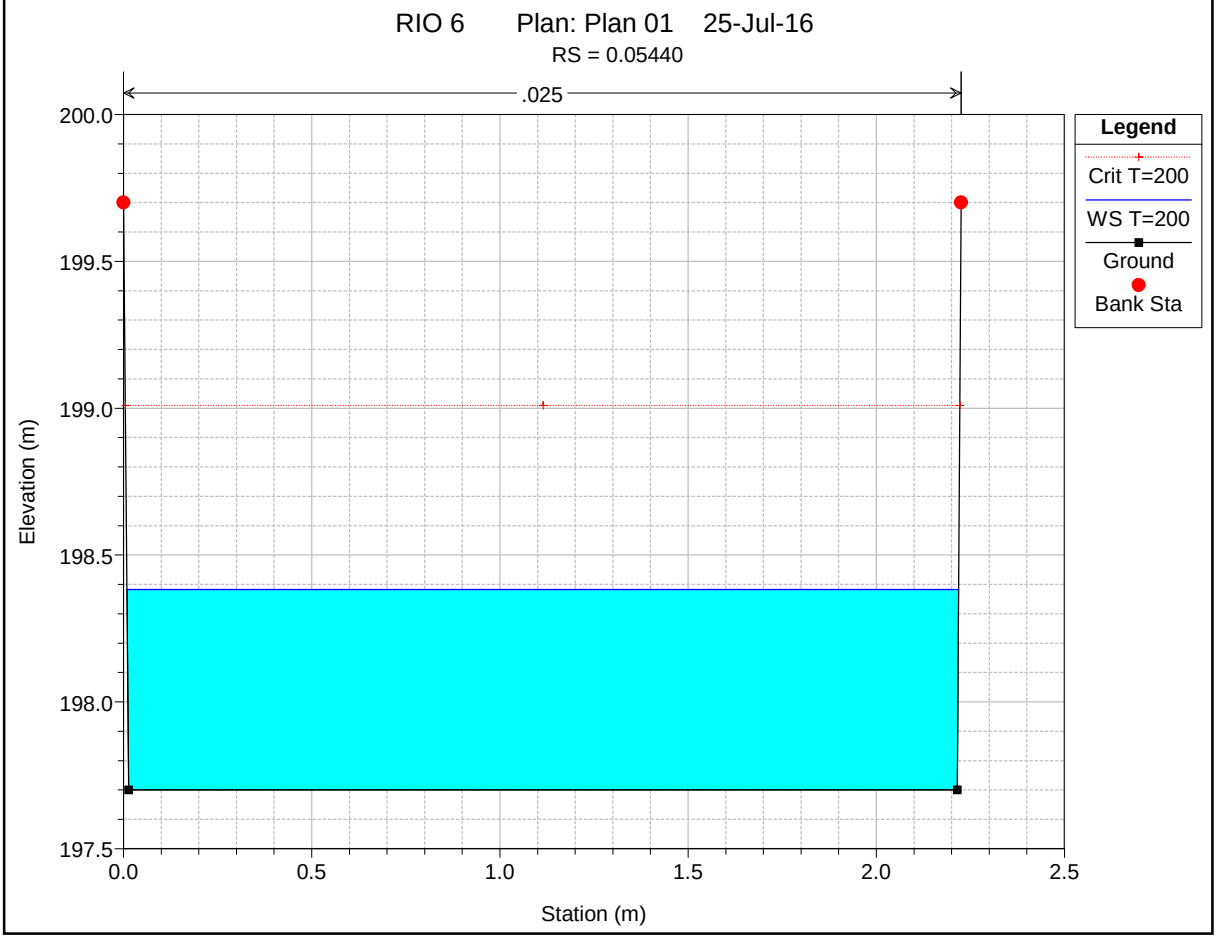

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06646
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
201.5
201.0
200.5
200.0
199.5
199.0
0.0
0.5
1.0
1.5
2.0
2.5

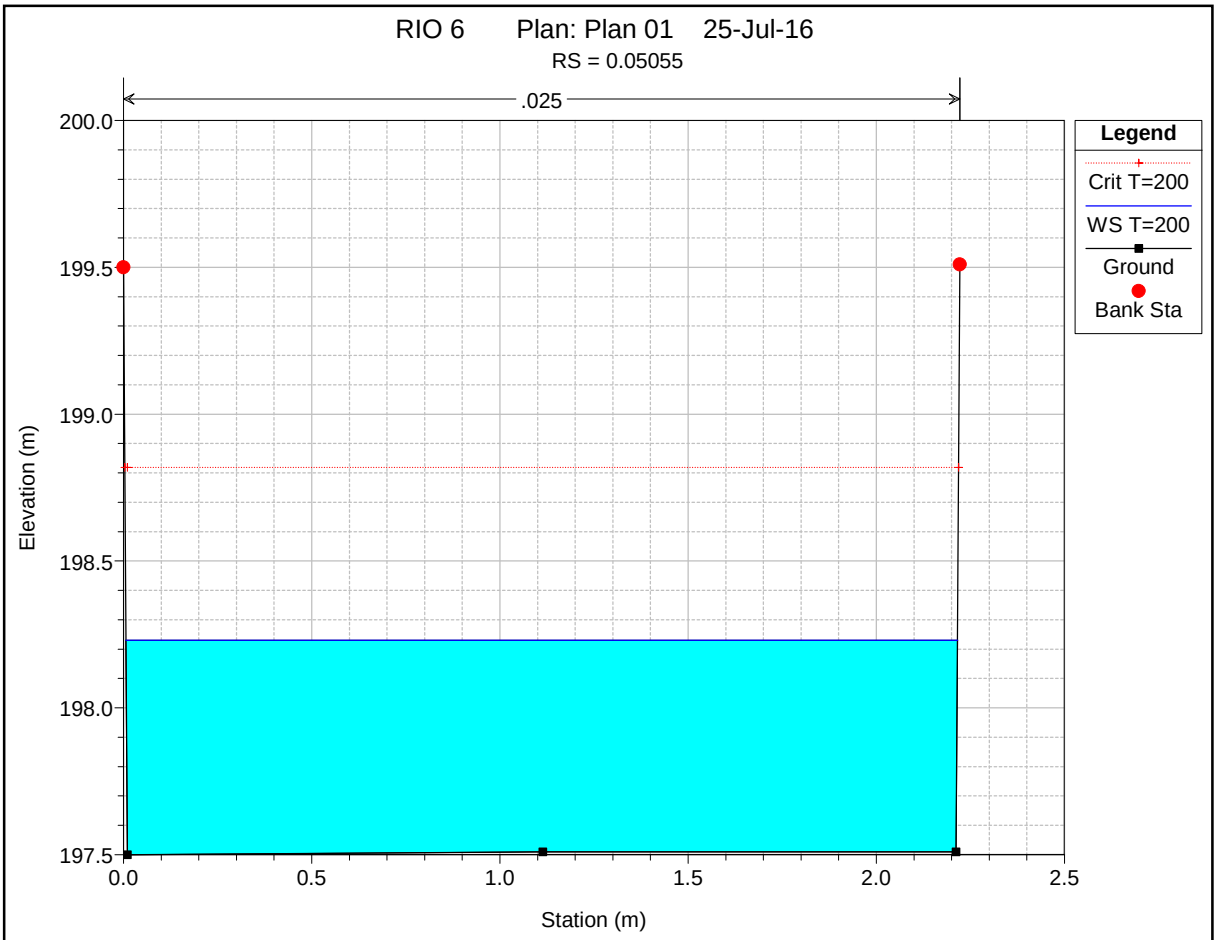

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06243
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
201.0
200.5
200.0
199.5
199.0
198.5
0.0
0.5
1.0
1.5
2.0
2.5

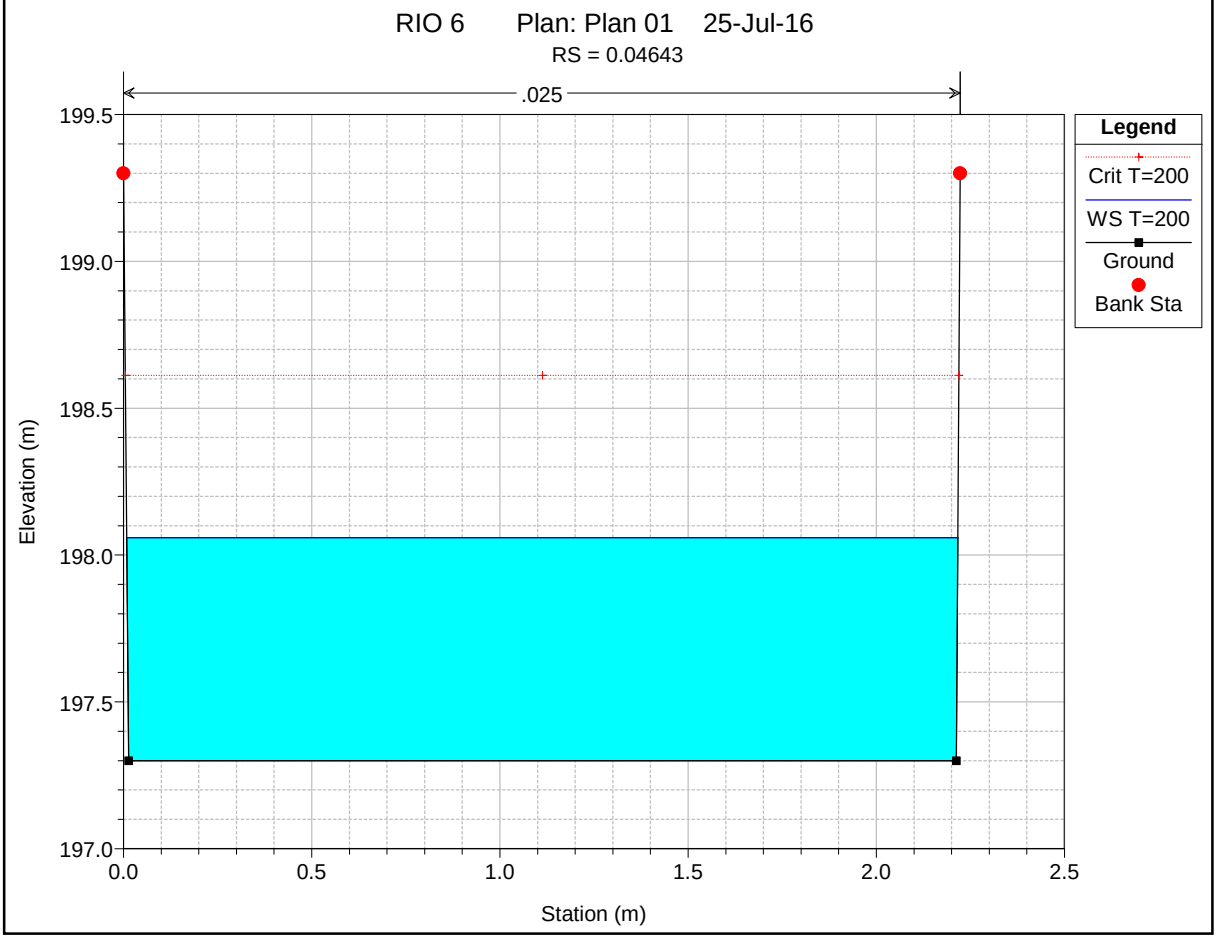

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.06239
.025
200.5
200.0
199.5
199.0
198.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

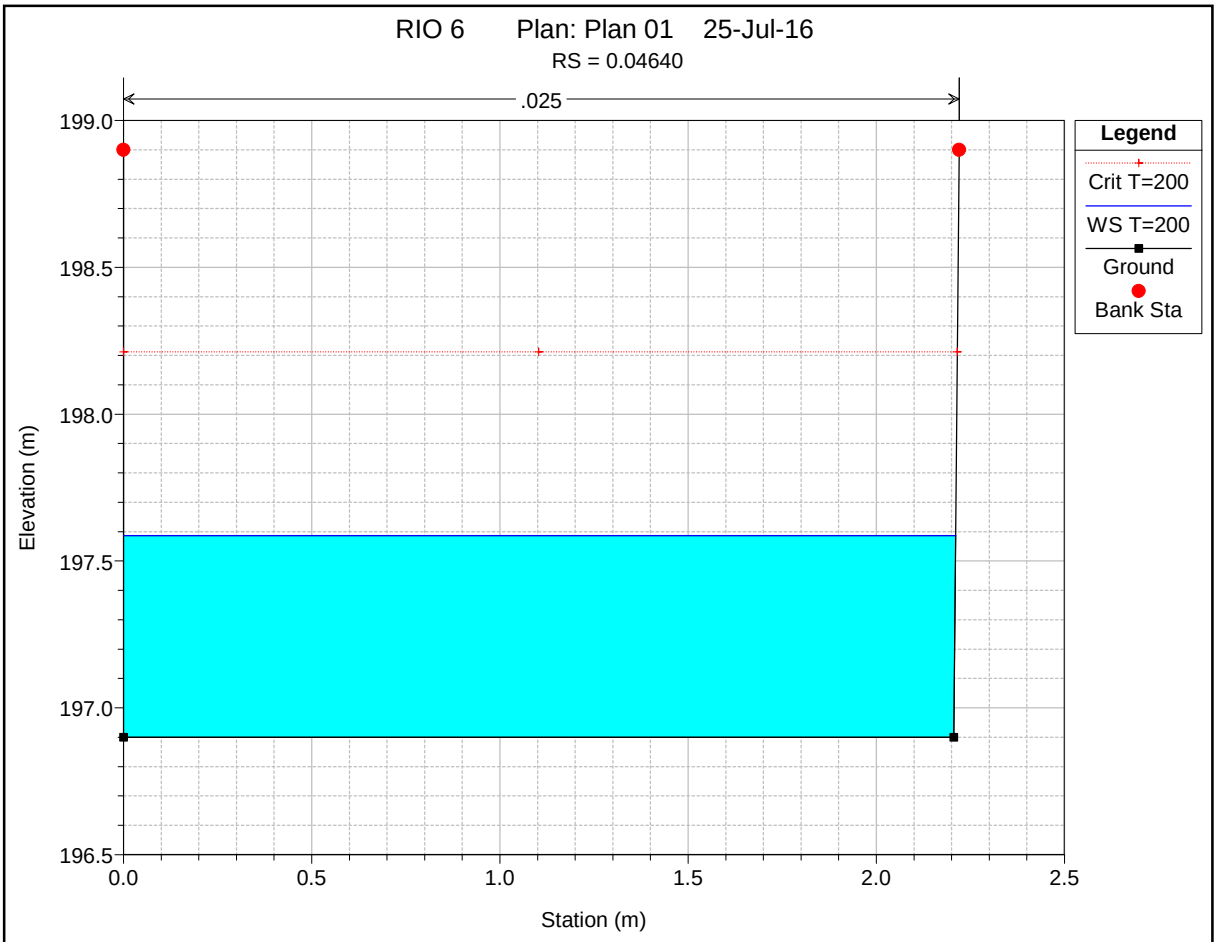

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05822
.025
200.5
200.0
199.5
199.0
198.5
198.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

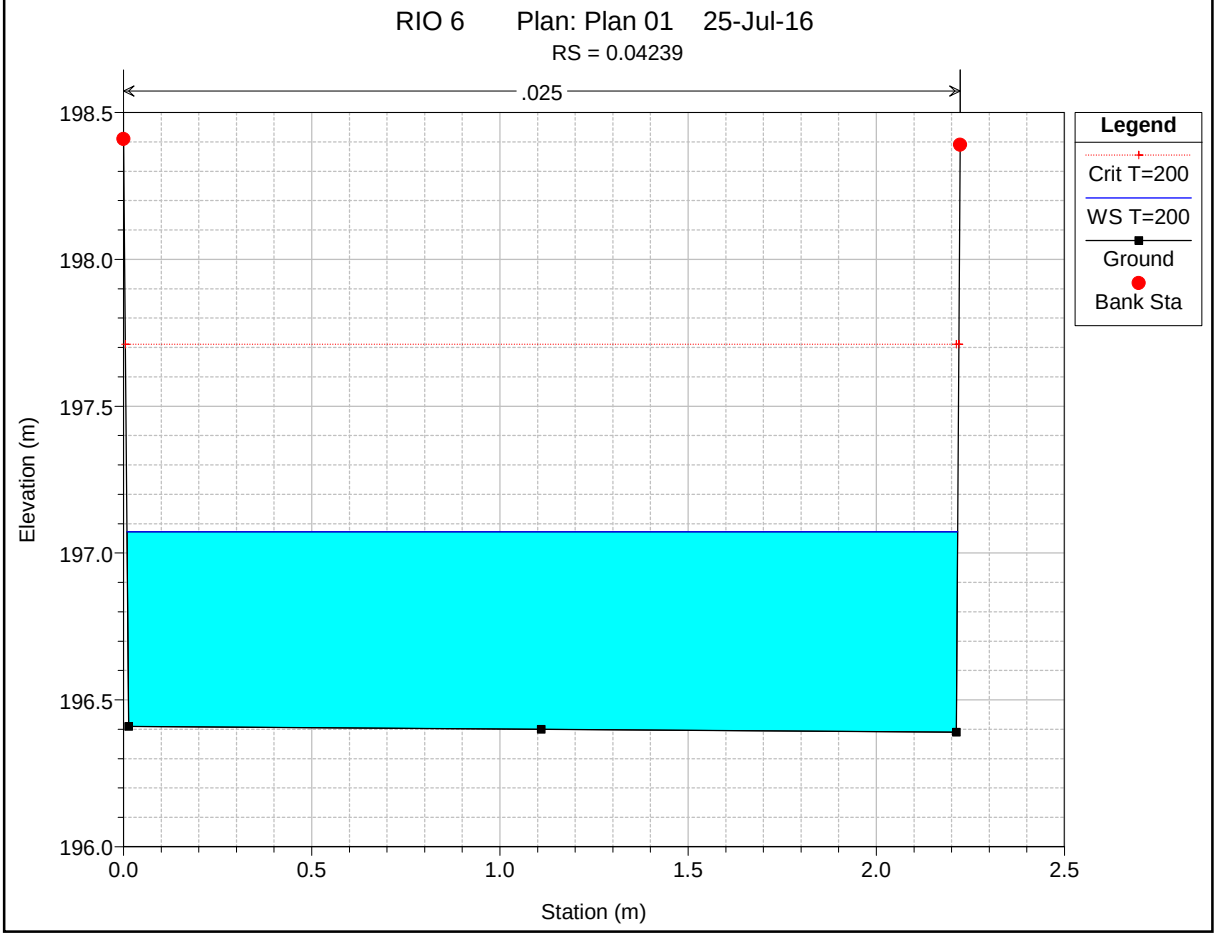

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05443
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
200.5
200.0
199.5
199.0
198.5
198.0
0.0
0.5
1.0
1.5
2.0
2.5

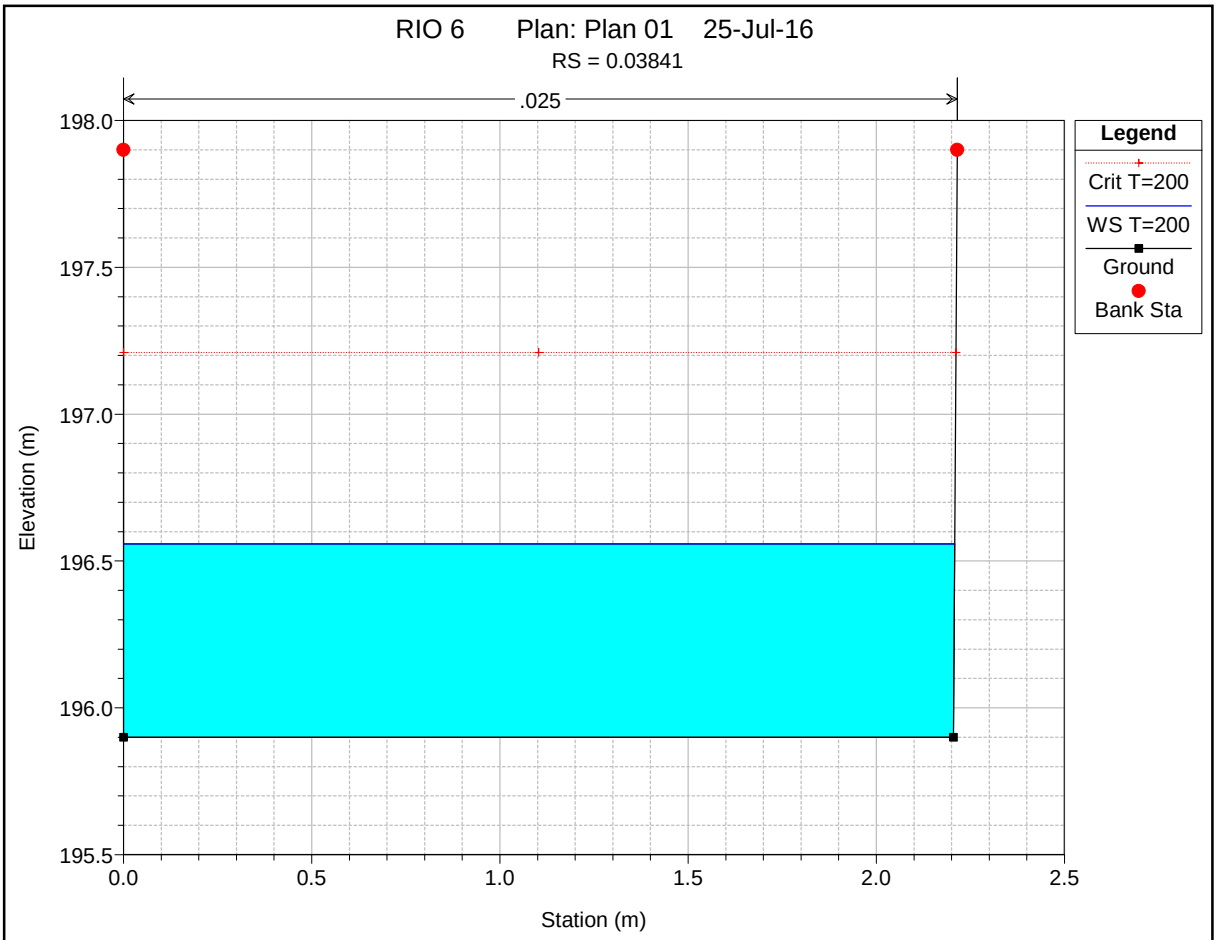

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05440
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
200.0
199.5
199.0
198.5
198.0
197.5
0.0
0.5
1.0
1.5
2.0
2.5

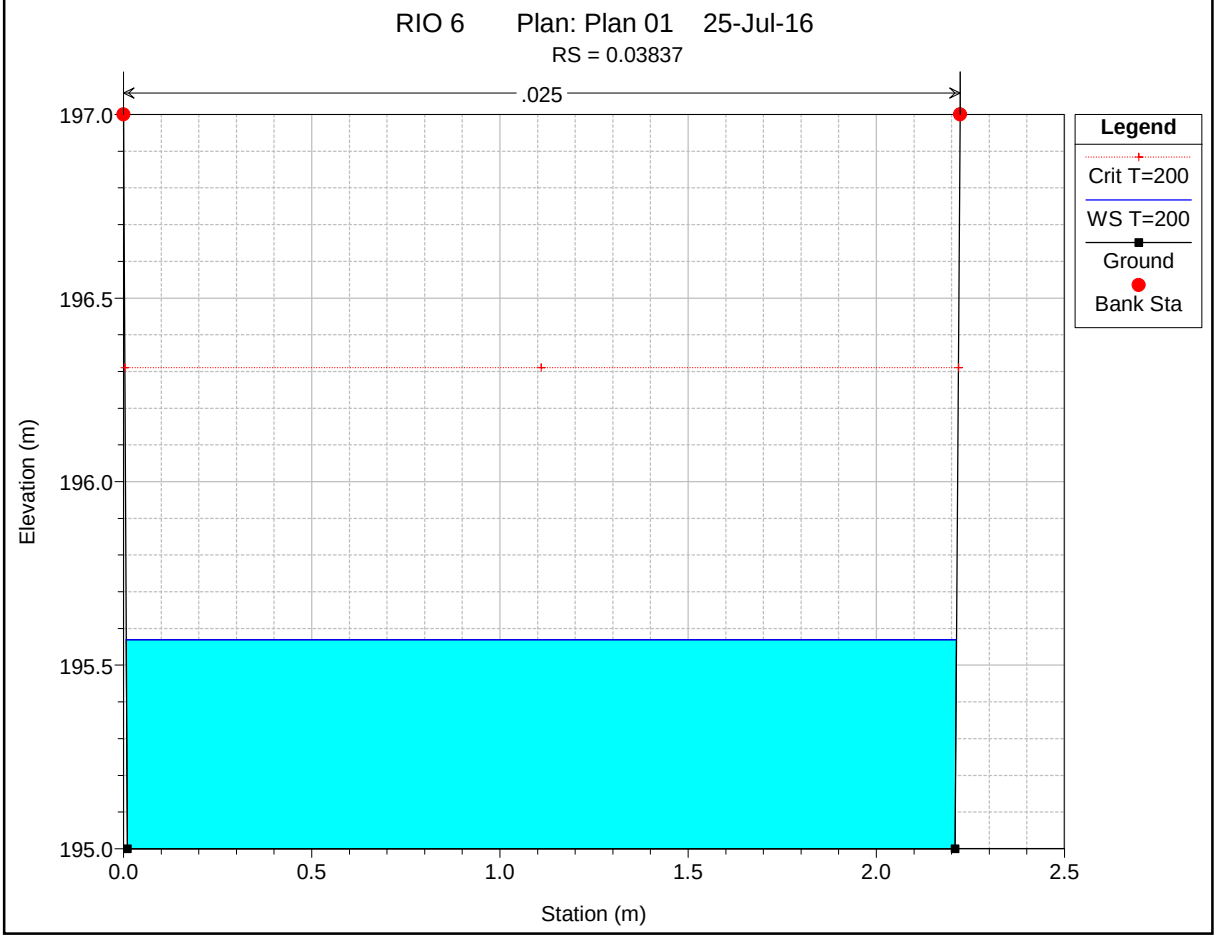

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.05055
.025
200.0
199.5
199.0
198.5
198.0
197.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

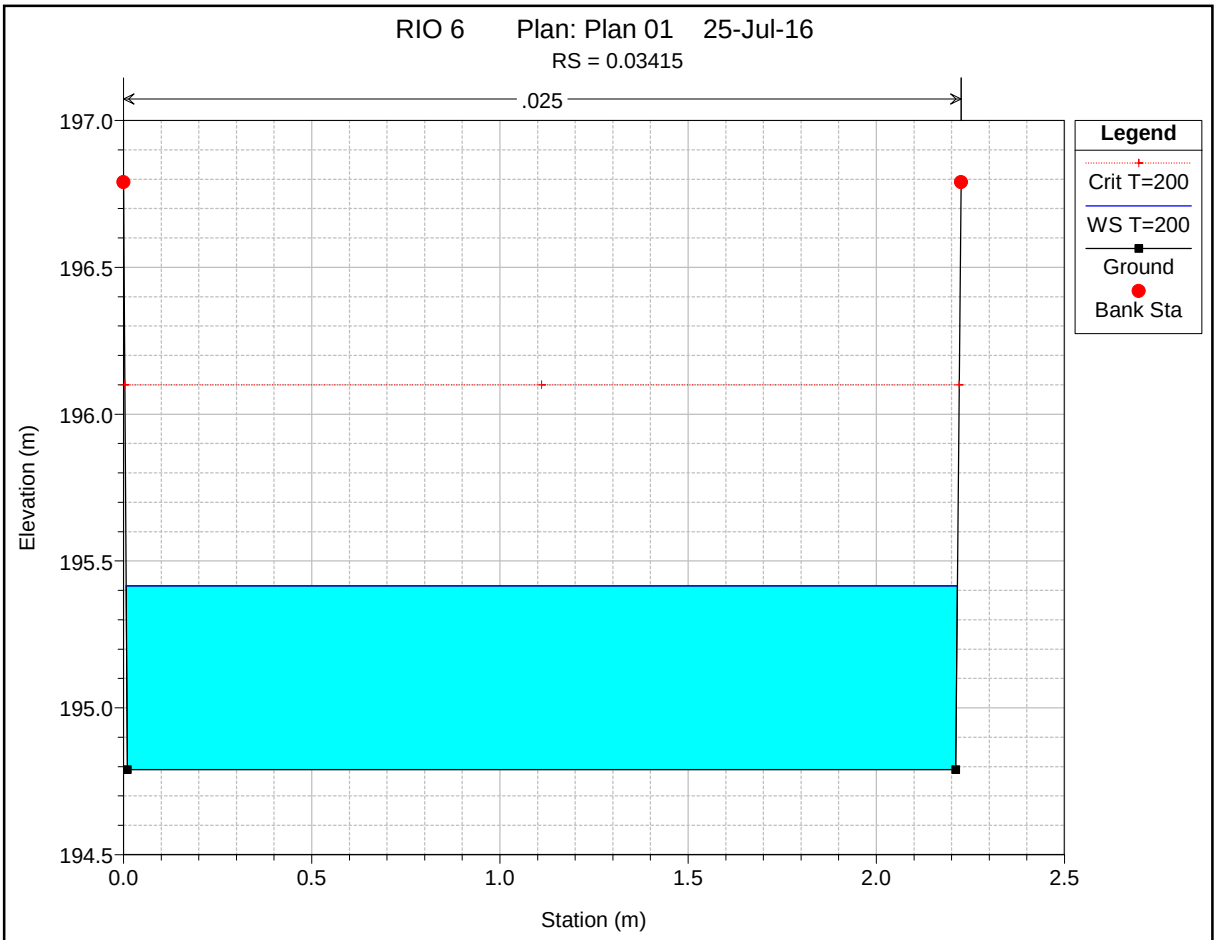

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04643
.025
199.5
199.0
198.5
198.0
197.5
197.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

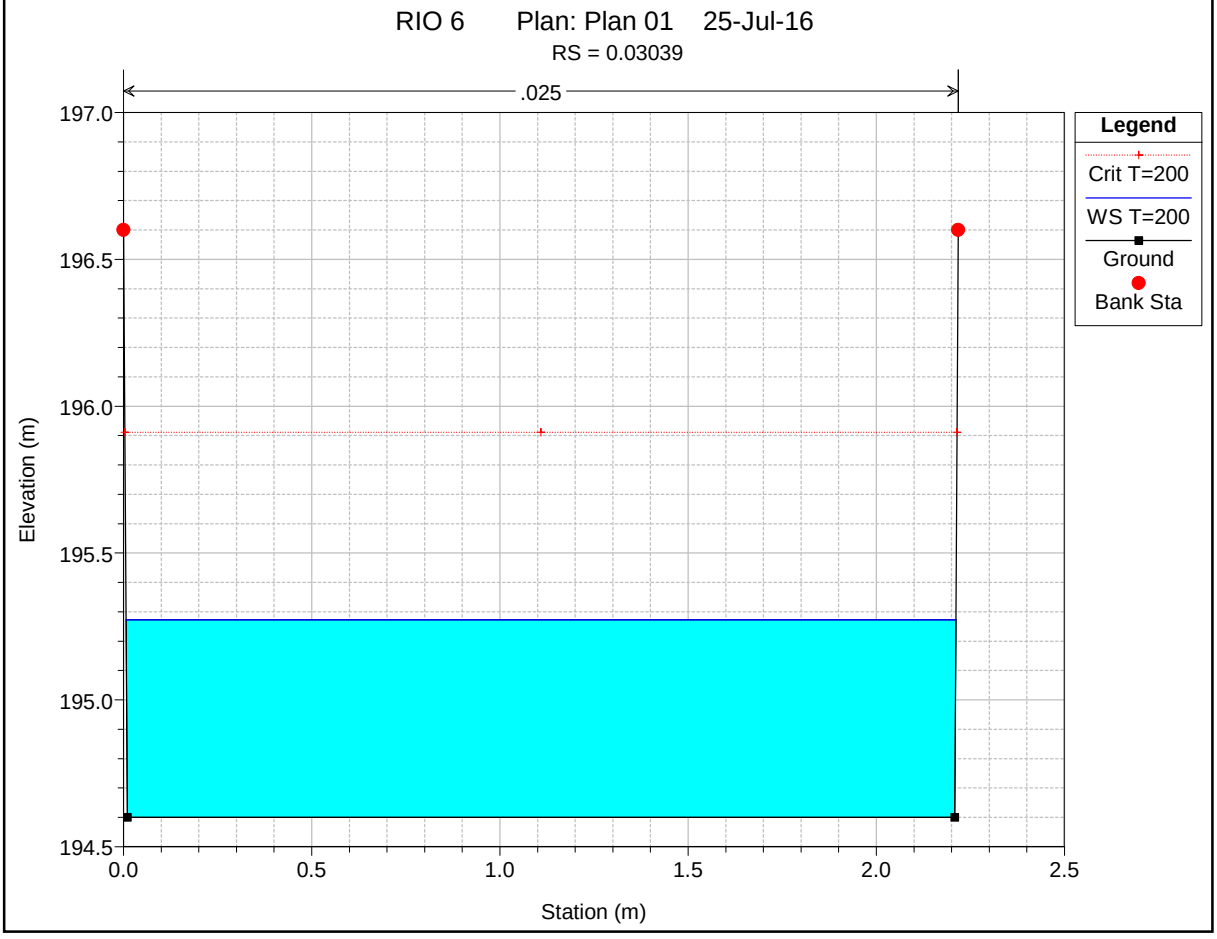

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04640
.025
199.0
198.5
198.0
197.5
197.0
196.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

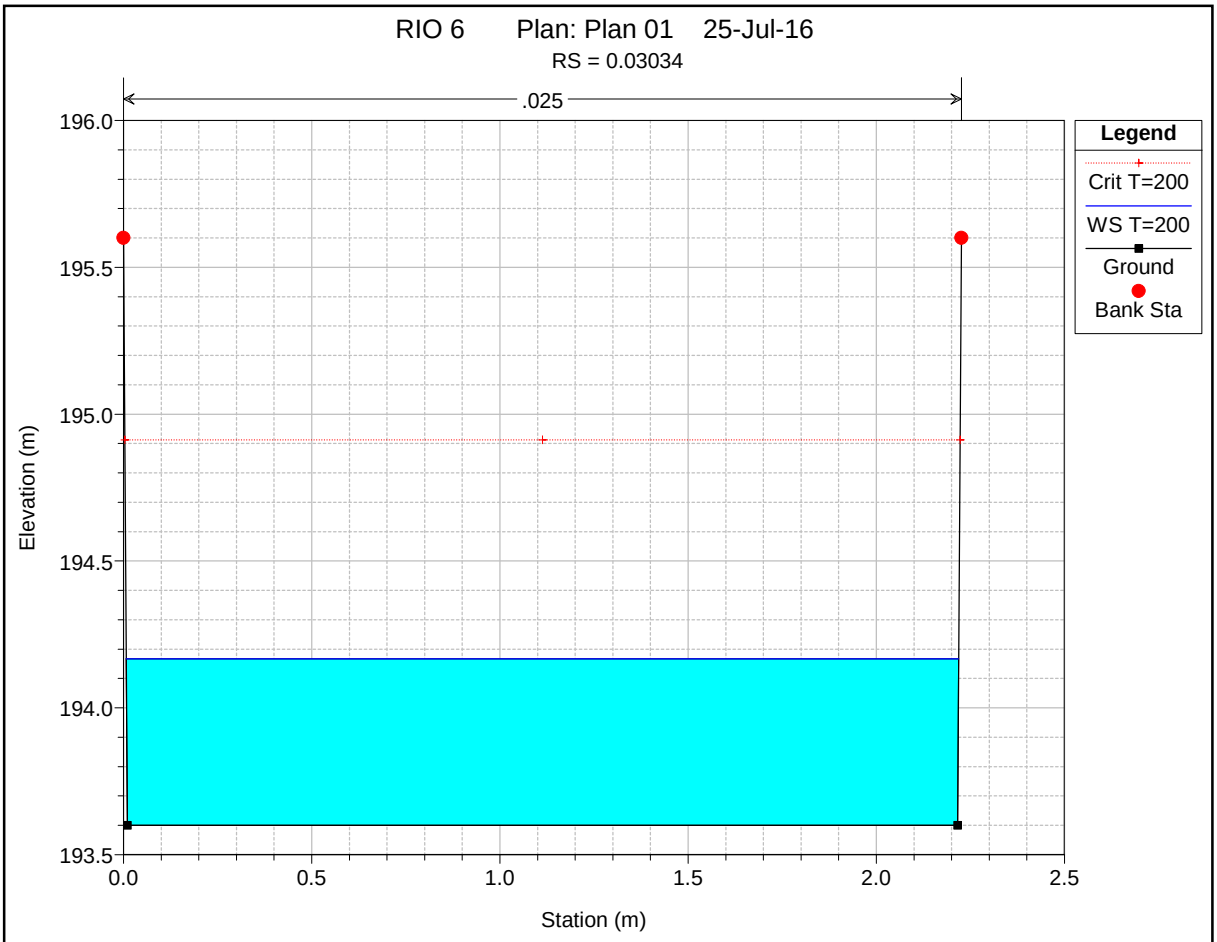

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.04239
.025
198.5
198.0
197.5
197.0
196.5
196.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

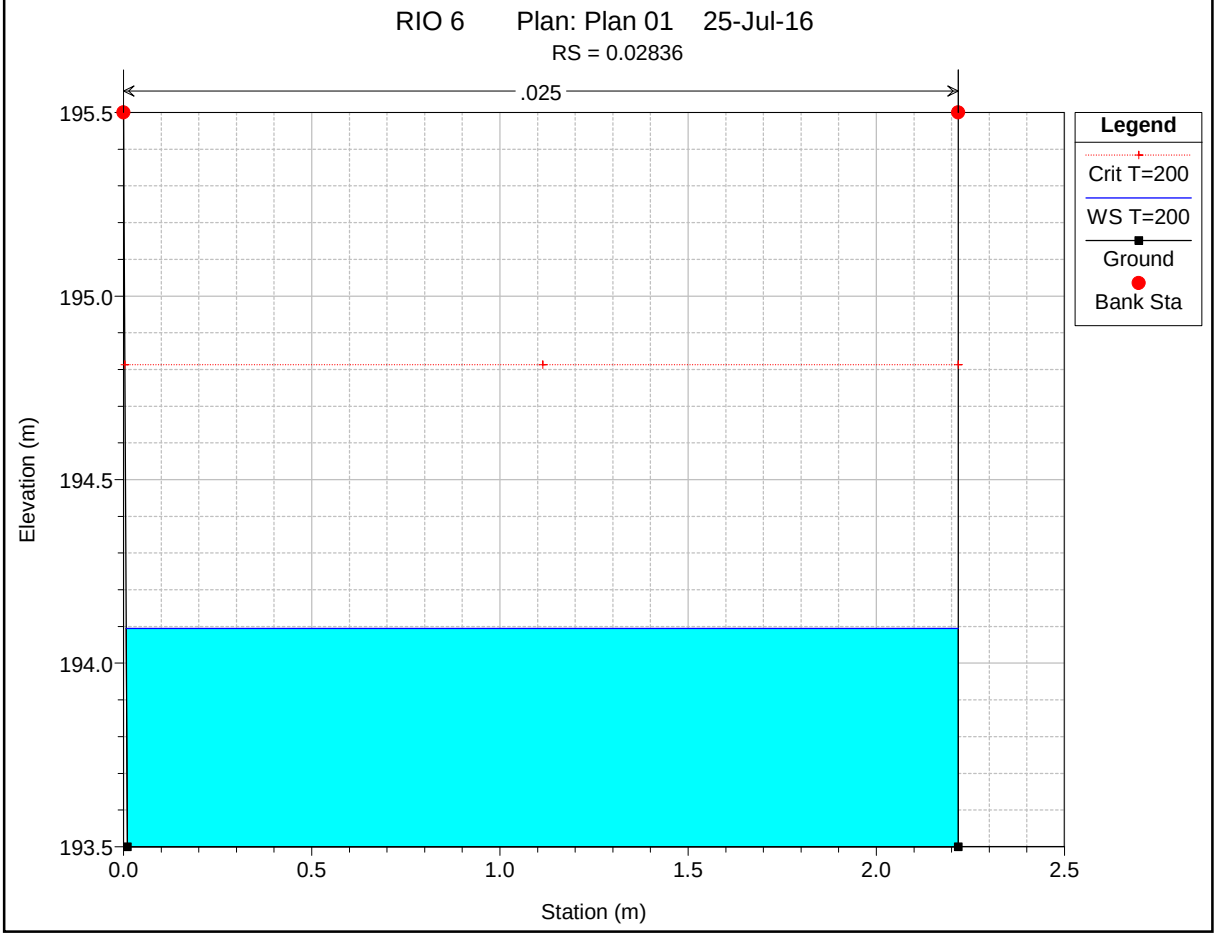

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03841
.025
198.0
197.5
197.0
196.5
196.0
195.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

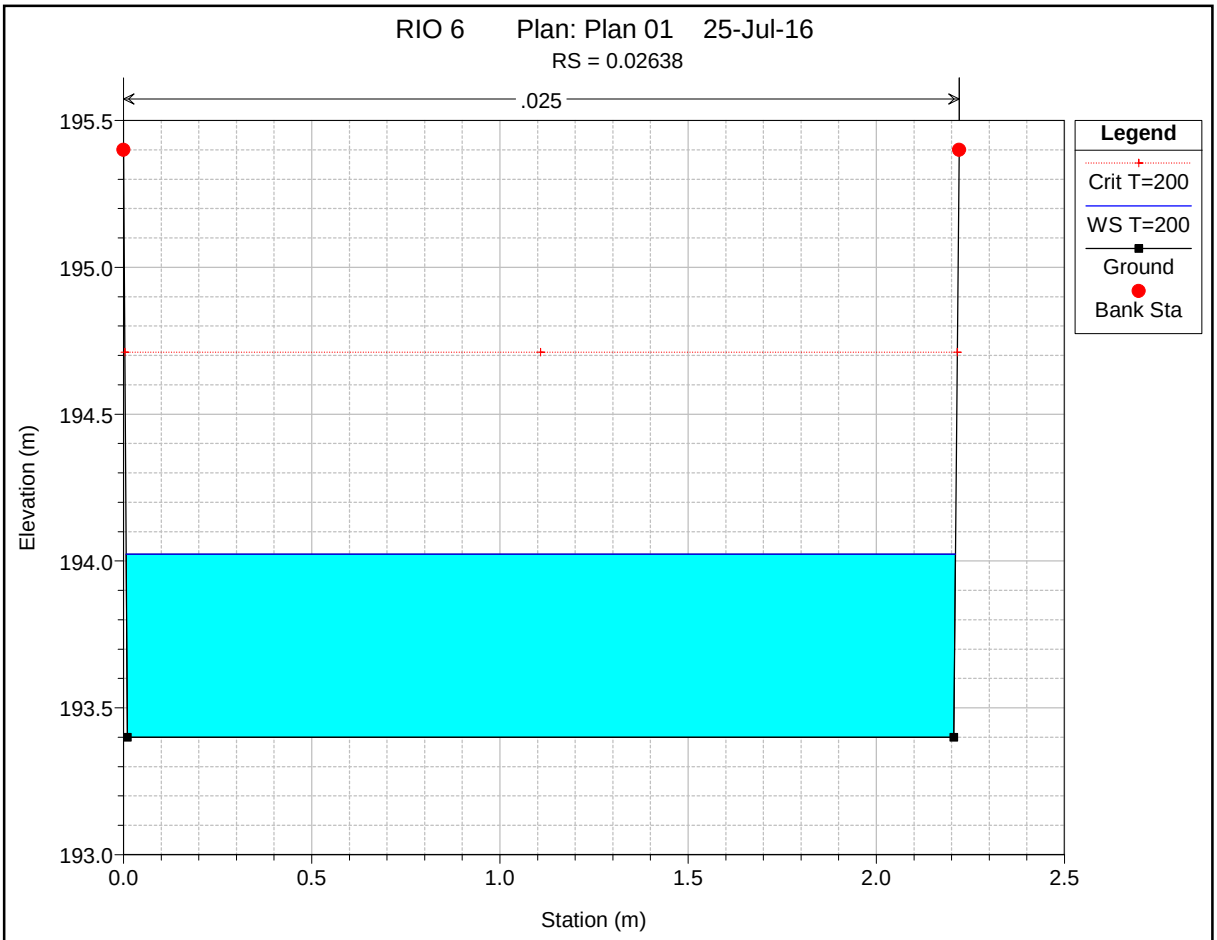

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03837
.025
197.0
196.5
196.0
195.5
195.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

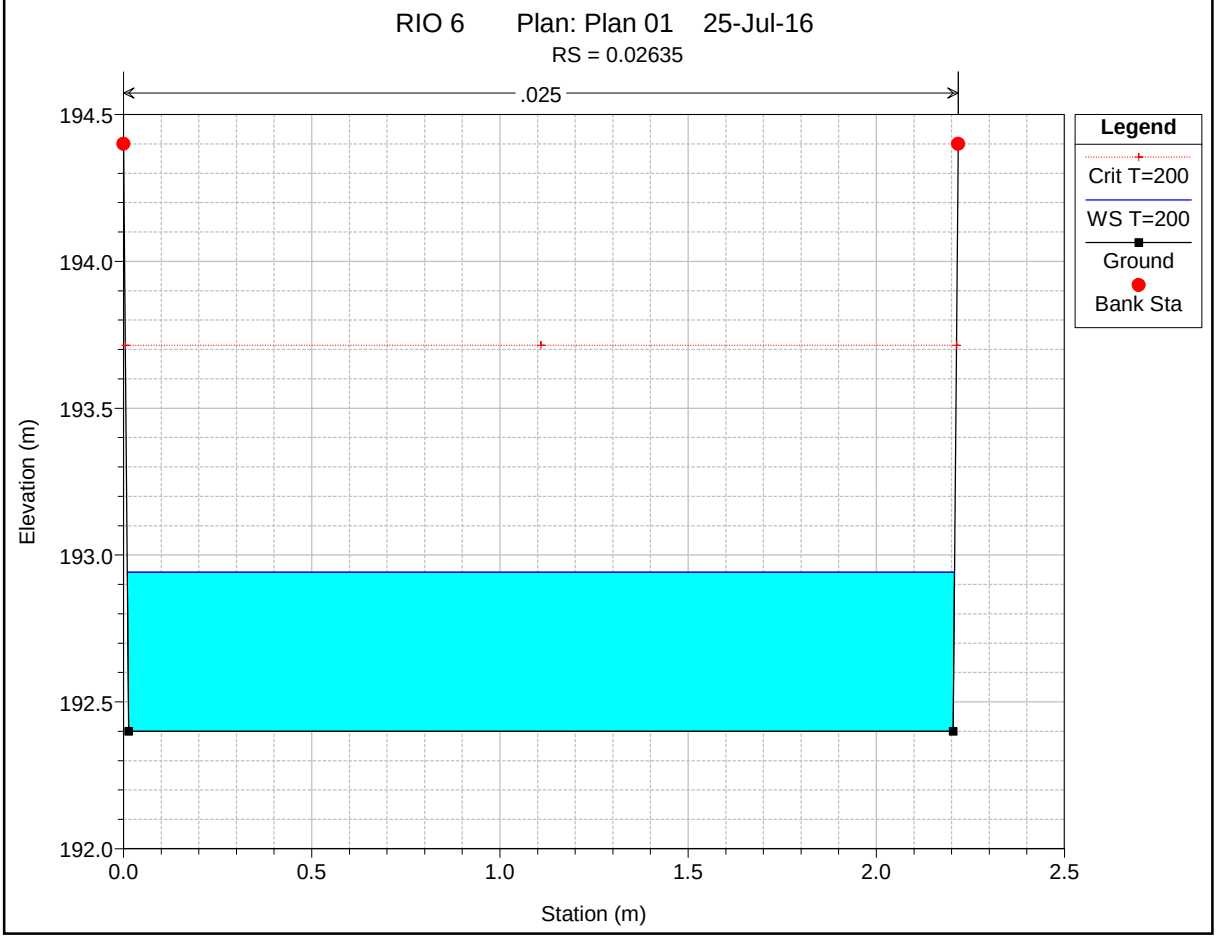

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03415
.025
197.0
196.5
196.0
195.5
195.0
194.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

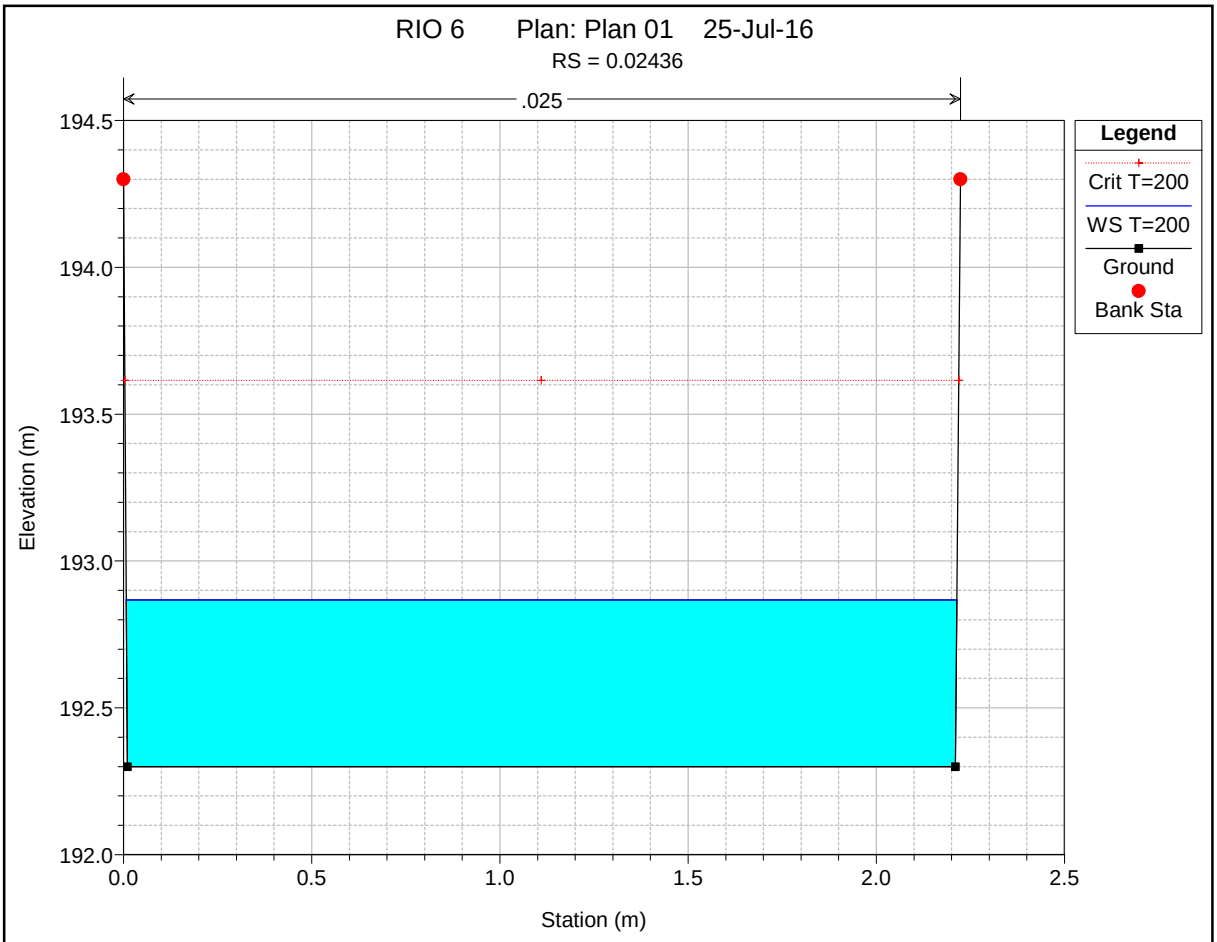

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03039
.025
197.0
196.5
196.0
195.5
195.0
194.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

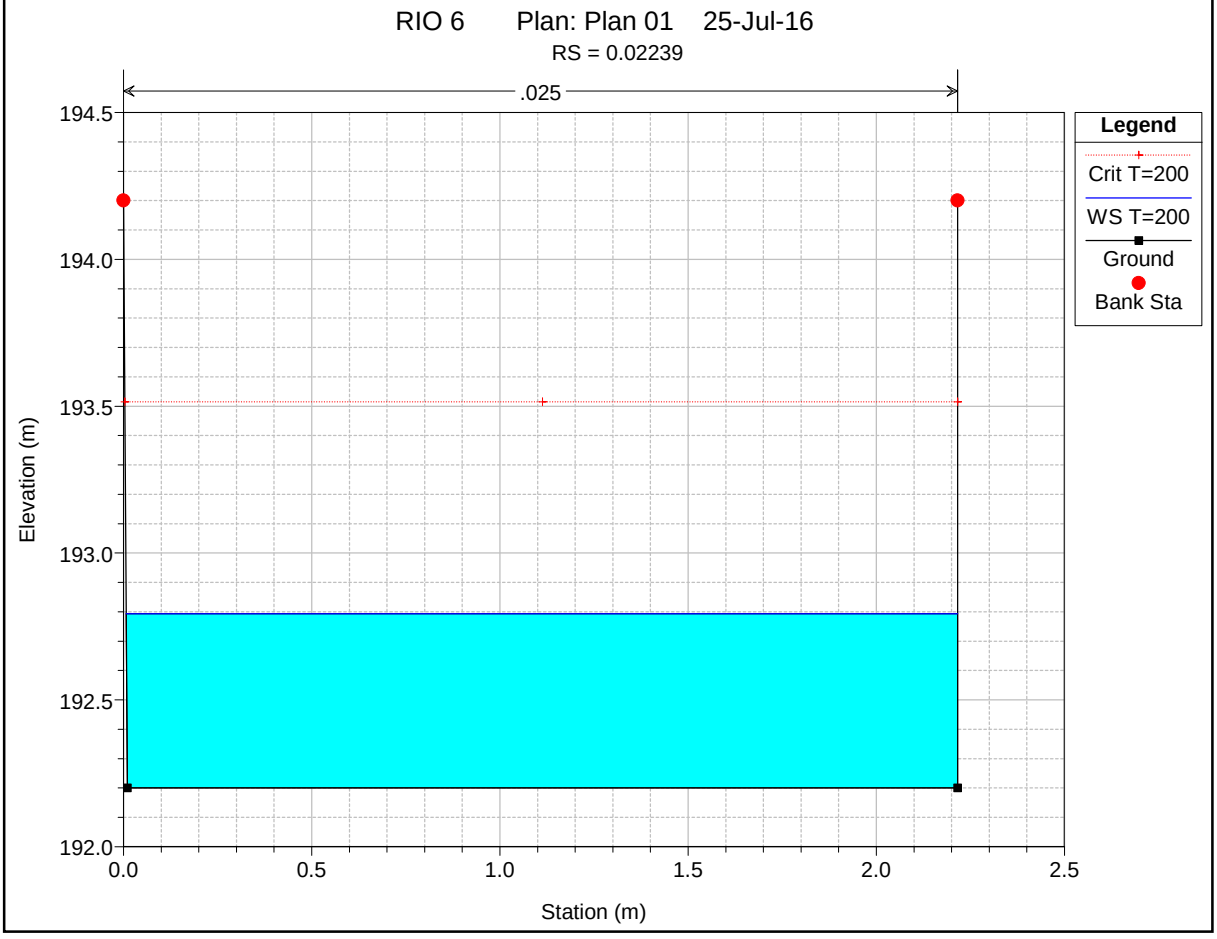

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.03034
.025
196.0
195.5
195.0
194.5
194.0
193.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

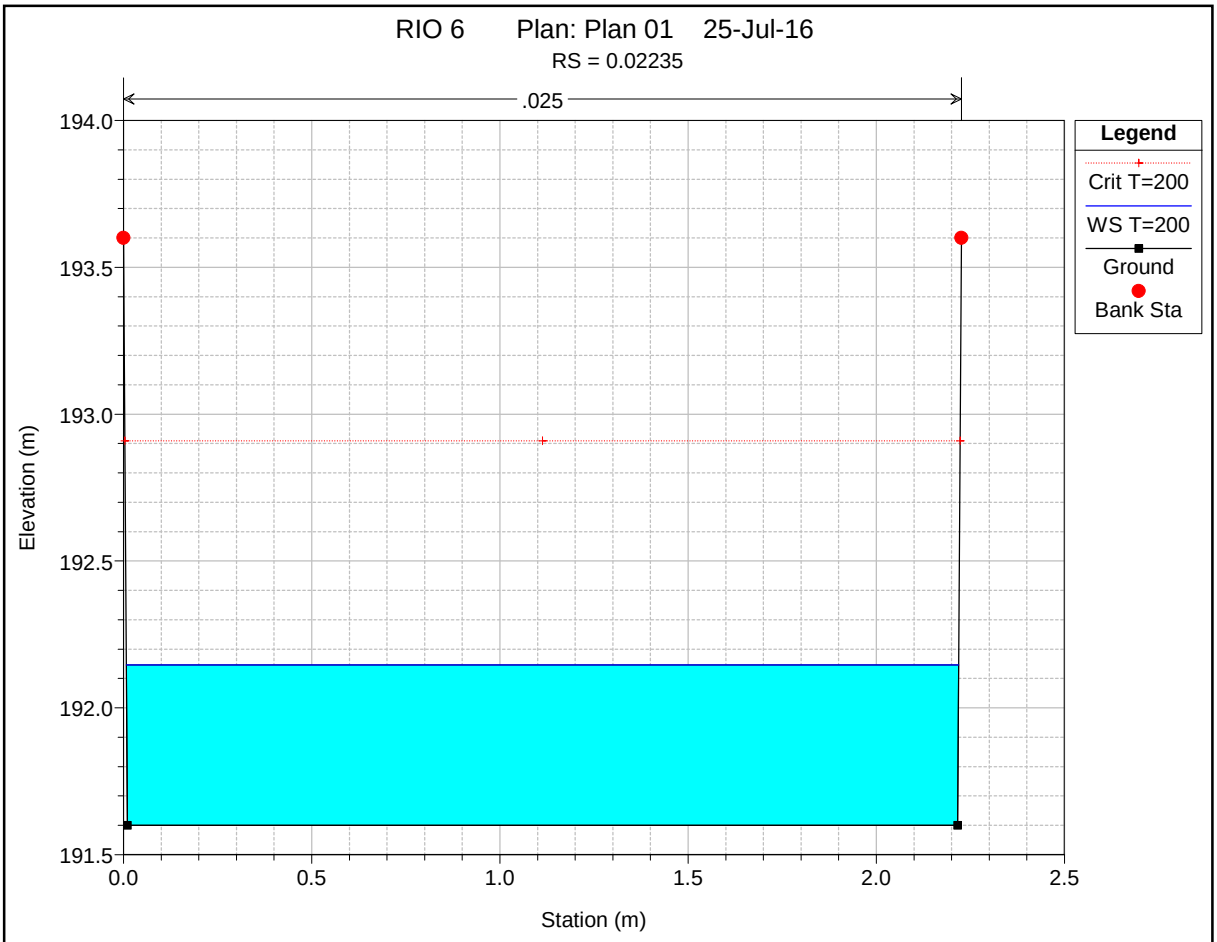

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02836
.025
195.5
195.0
194.5
194.0
193.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

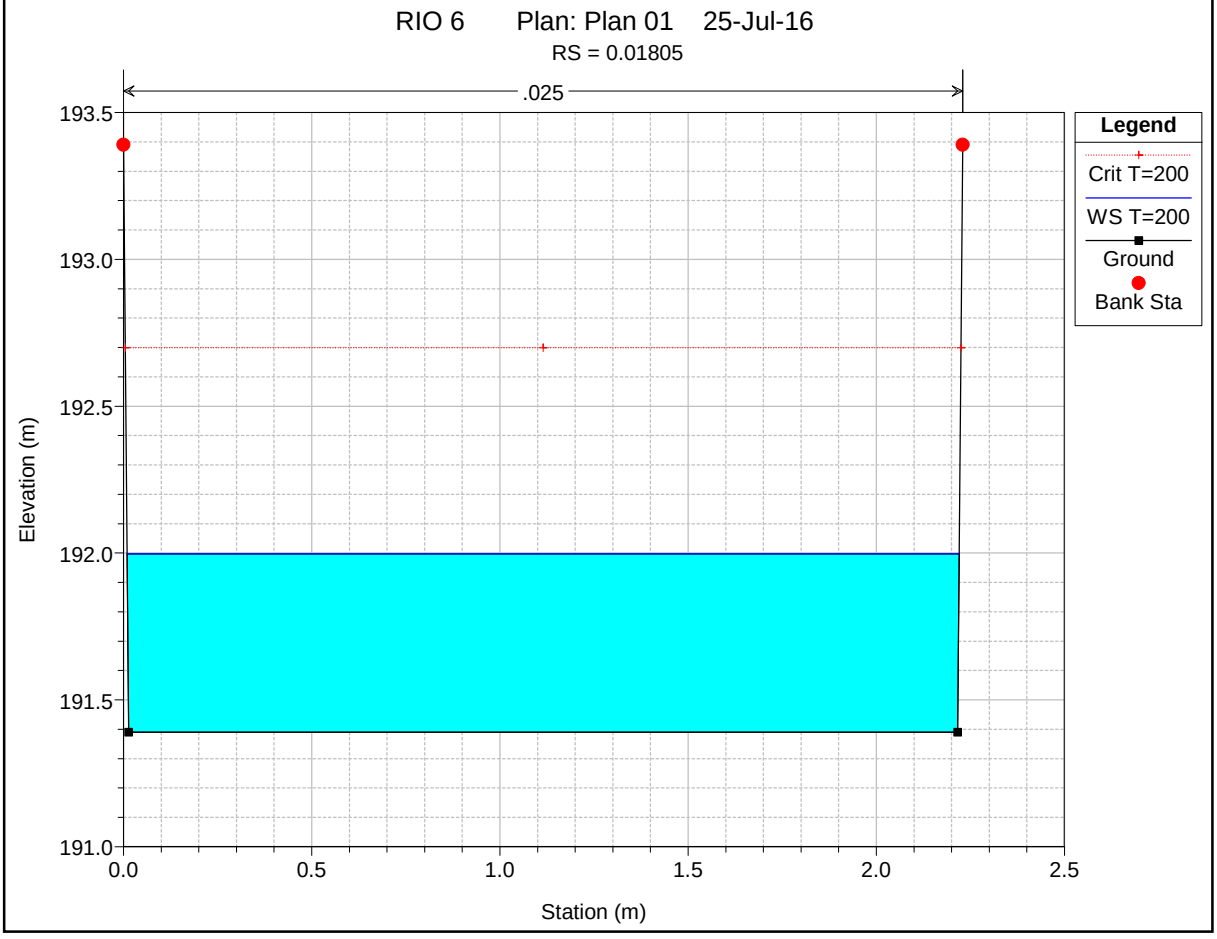

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02638
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
195.5
195.0
194.5
194.0
193.5
193.0
0.0
0.5
1.0
1.5
2.0
2.5

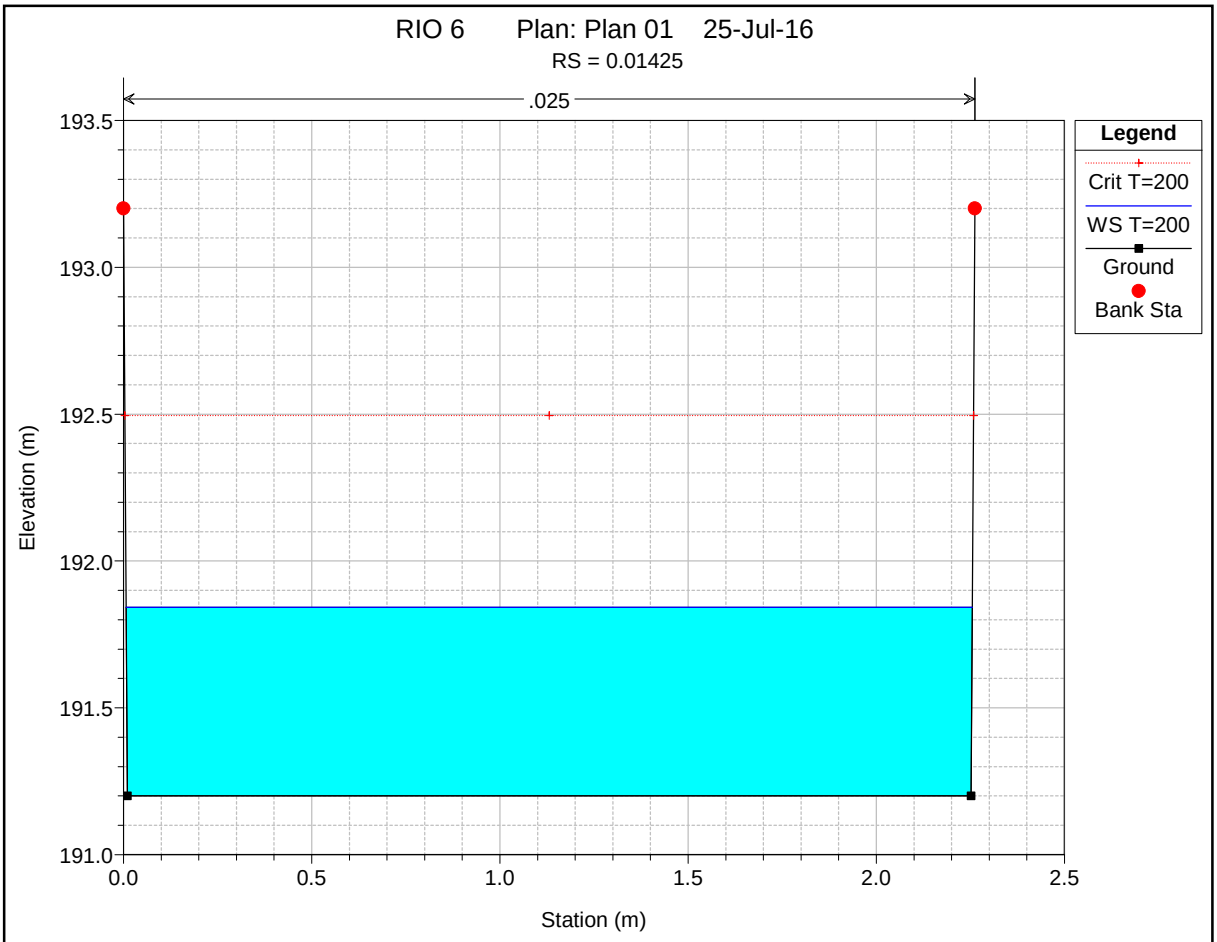

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02635
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
194.5
194.0
193.5
193.0
192.5
192.0
0.0
0.5
1.0
1.5
2.0
2.5

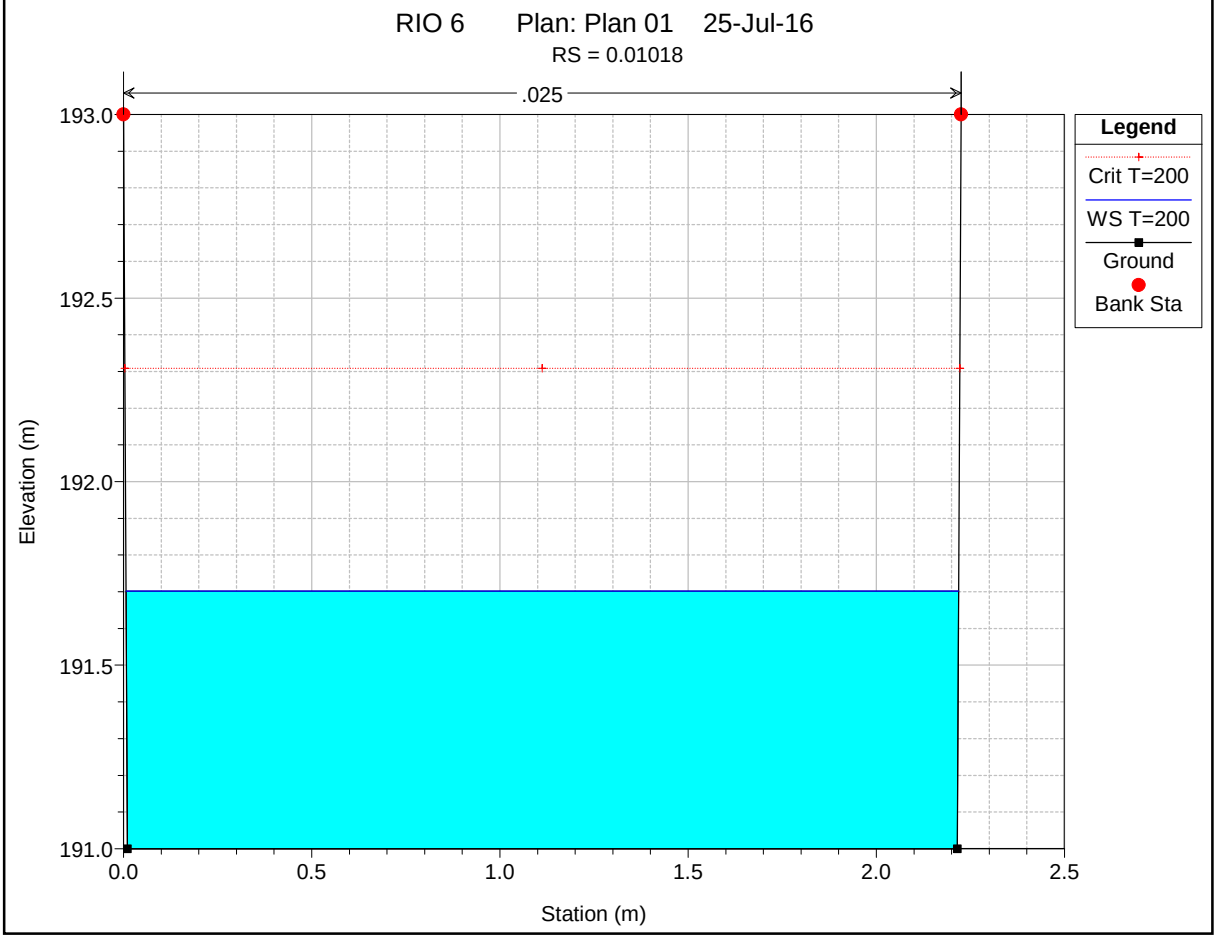

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02436
.025
194.5
194.0
193.5
193.0
192.5
192.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

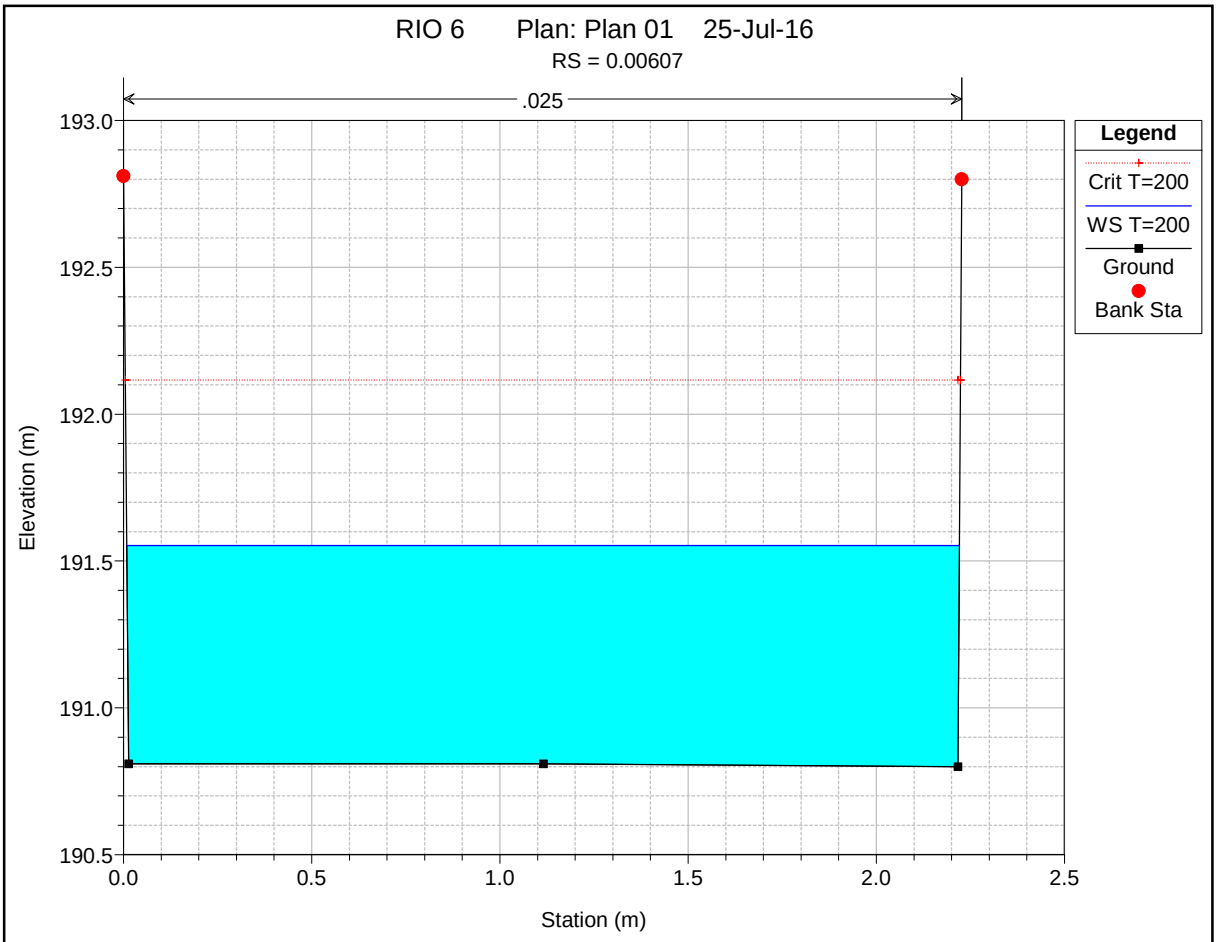

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02239
.025
194.5
194.0
193.5
193.0
192.5
192.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

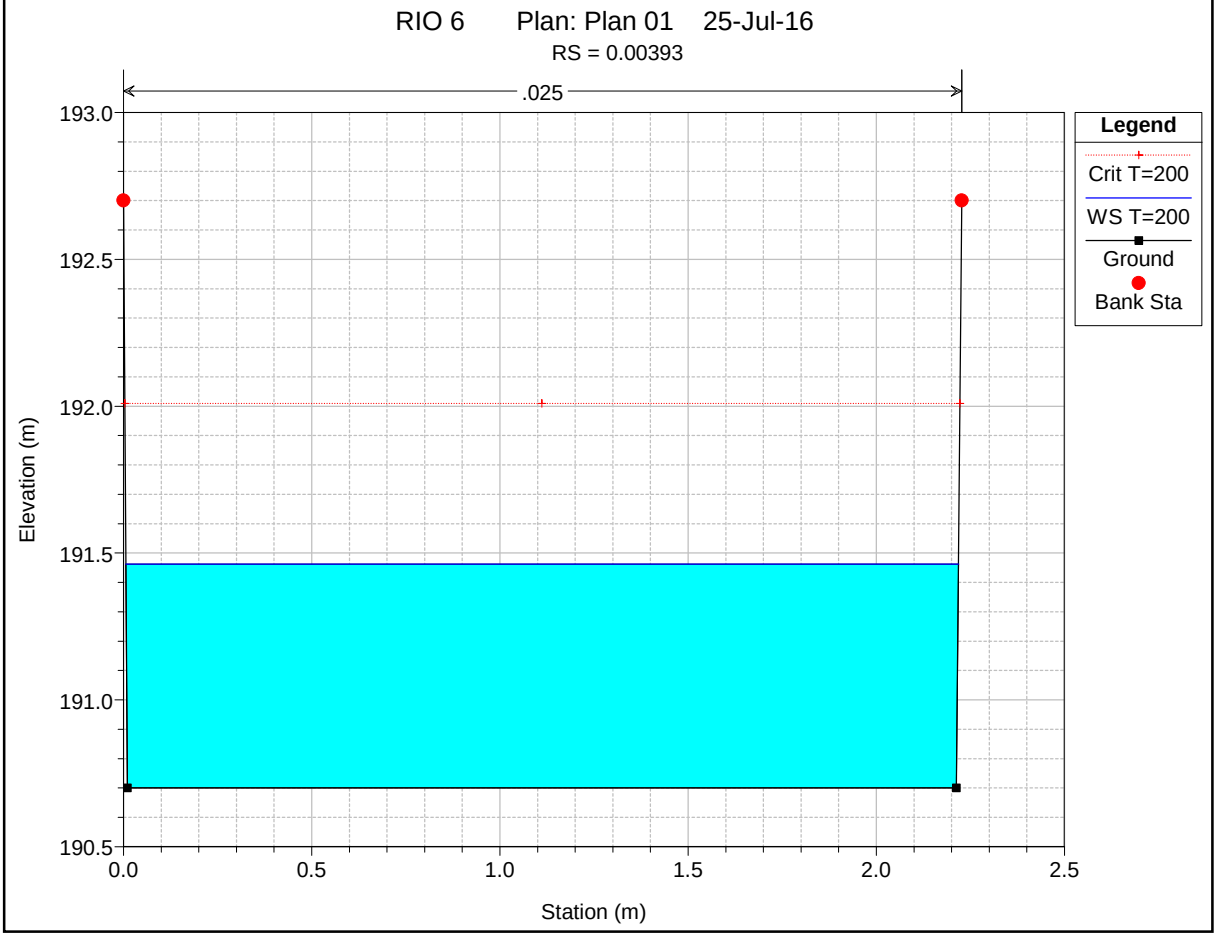

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.02235
.025
194.0
193.5
193.0
192.5
192.0
191.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

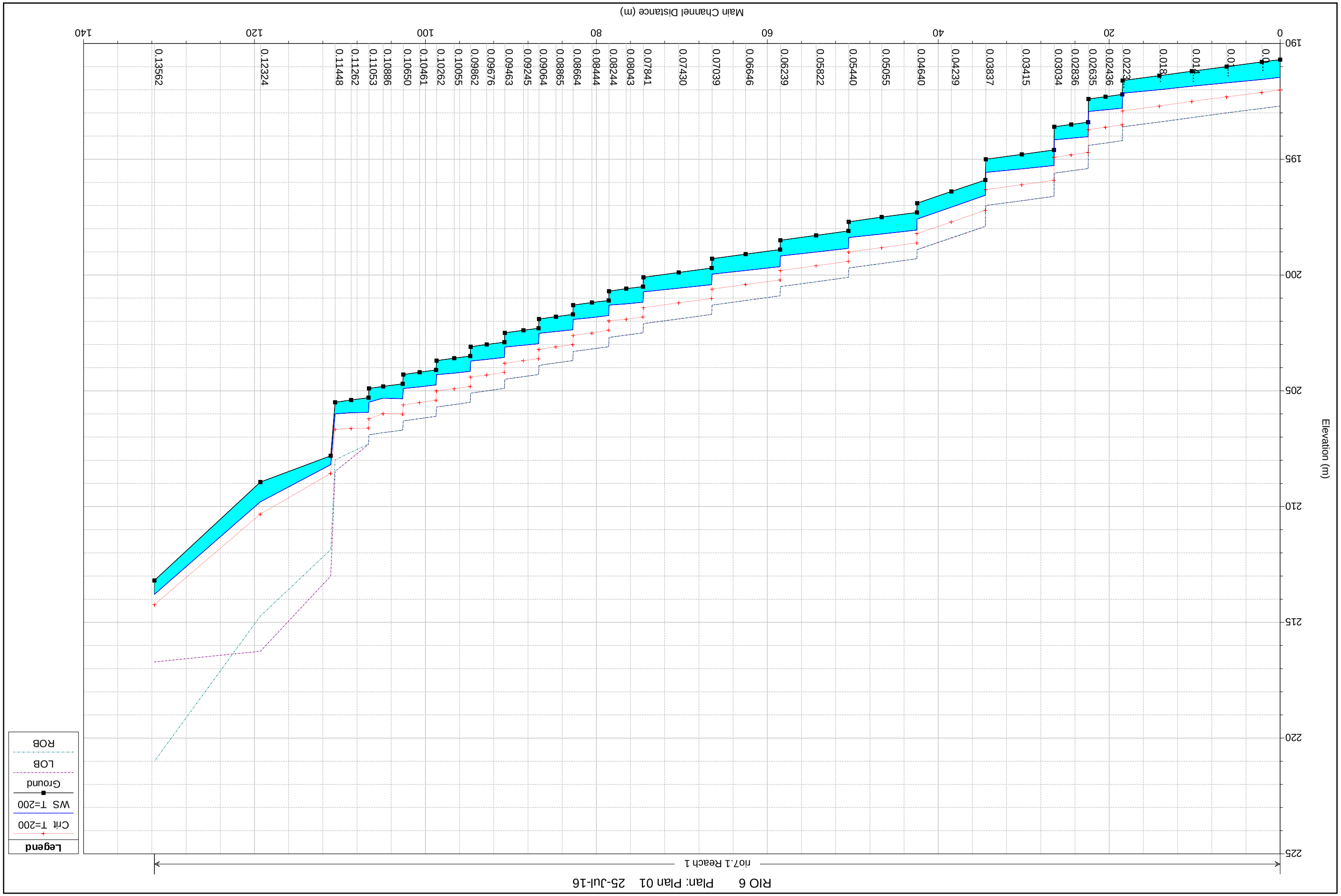

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01805
.025
193.5
193.0
192.5
192.0
191.5
191.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01425
.025
193.5
193.0
192.5
192.0
191.5
191.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta

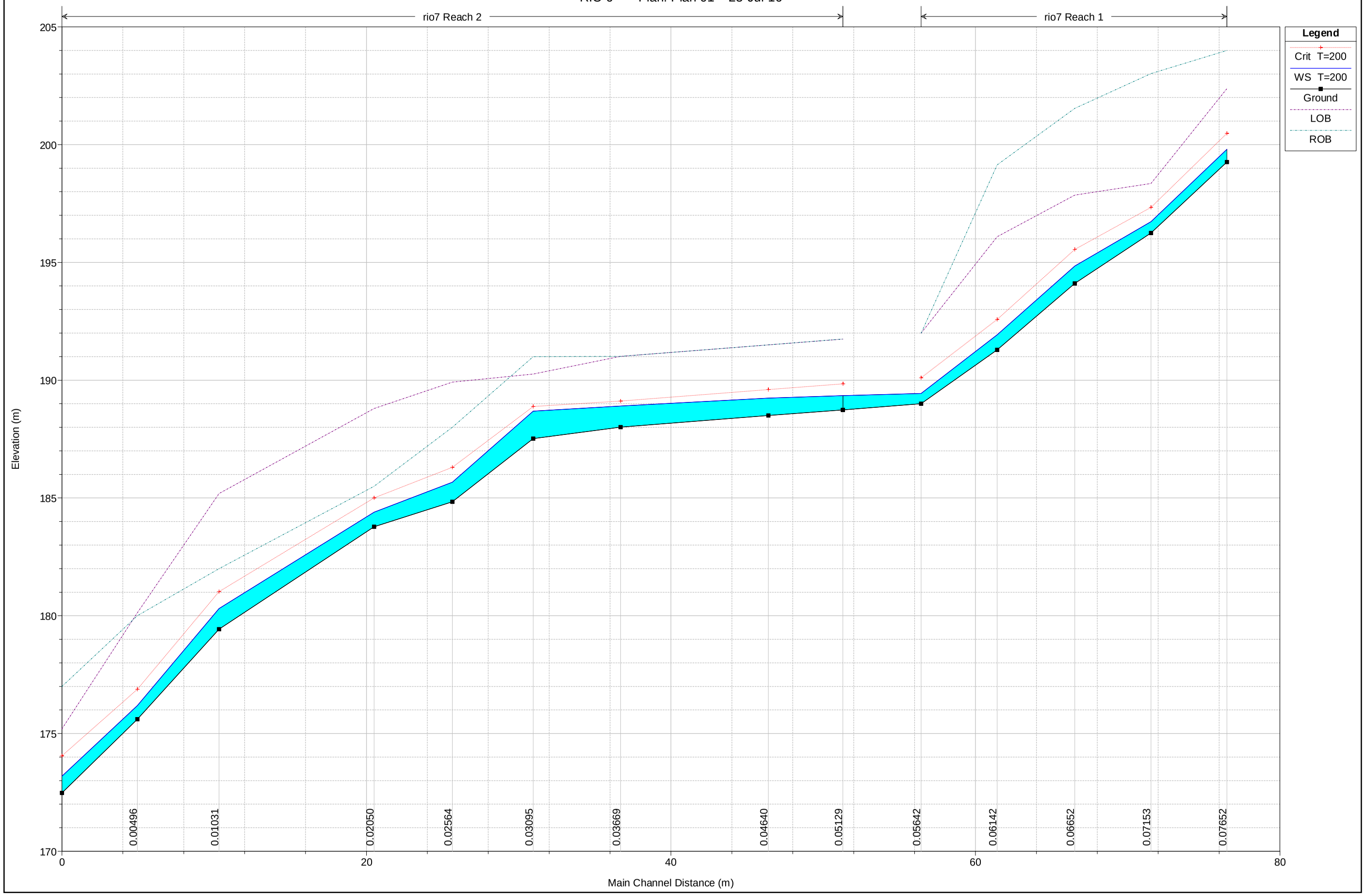

RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.01018
.025
193.0
192.5
192.0
191.5
191.0
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00607
.025
193.0
192.5
192.0
191.5
191.0
190.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
RS = 0.00393
.025
193.0
192.5
192.0
191.5
191.0
190.5
Elevation (m)
0.0
0.5
1.0
1.5
2.0
2.5
Station (m)
Legend
Crit T=200
WS T=200
Ground
Bank Sta


RIO 6 Plan: Plan 01 25-Jul-16
Main Channel Distance (m)
Elevation (m)
riot.1 Reach 1
Legend
Crit T=200
WS T=200
Ground
LOB
ROB

RIO 6 Plan: Plan 01 25-Jul-16



HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.13562	T=200	10.40	213.19	213.80	214.23	6.37	2.91	216.71	7.20	221.00	2.07	3.53
rio7.1	Reach 1	0.12324	T=200	10.40	208.94	209.80	210.33	6.90	6.45	216.25	4.93	214.73	2.43	3.35
rio7.1	Reach 1	0.11501	T=200	10.40	207.81	208.19	208.57	5.63	4.81	213.00	3.67	211.86	1.62	3.20
rio7.1	Reach 1	0.11448	T=200	10.40	205.50	206.00	206.66	8.31	2.48	208.48	1.99	207.99	3.52	3.99
rio7.1	Reach 1	0.11262	T=200	10.40	205.40	205.95	206.62	7.92	1.98	207.93	1.70	207.65	3.20	3.57
rio7.1	Reach 1	0.11058	T=200	10.40	205.30	205.93	206.61	7.48	1.38	207.31	1.37	207.30	2.85	3.01
rio7.1	Reach 1	0.11053	T=200	10.40	204.90	205.49	206.21	7.98	1.41	206.90	1.41	206.90	3.24	3.31
rio7.1	Reach 1	0.10886	T=200	10.40	204.81	205.32	205.98	7.86	1.49	206.81	1.49	206.81	3.15	3.52
rio7.1	Reach 1	0.10657	T=200	10.40	204.70	205.34	206.00	7.28	1.36	206.70	1.36	206.70	2.70	2.90
rio7.1	Reach 1	0.10650	T=200	10.40	204.30	204.90	205.61	7.79	1.40	206.30	1.40	206.30	3.09	3.20
rio7.1	Reach 1	0.10461	T=200	10.40	204.20	204.83	205.51	7.49	1.37	206.20	1.37	206.20	2.86	3.02
rio7.1	Reach 1	0.10267	T=200	10.40	204.10	204.75	205.40	7.23	1.35	206.10	1.35	206.10	2.66	2.87
rio7.1	Reach 1	0.10262	T=200	10.40	203.70	204.31	205.01	7.74	1.39	205.70	1.39	205.70	3.06	3.18
rio7.1	Reach 1	0.10055	T=200	10.40	203.59	204.24	204.91	7.41	1.36	205.60	1.35	205.59	2.80	2.96
rio7.1	Reach 1	0.09868	T=200	10.40	203.50	204.16	204.81	7.16	1.34	205.50	1.34	205.50	2.61	2.82
rio7.1	Reach 1	0.09862	T=200	10.40	203.10	203.72	204.41	7.68	1.38	205.10	1.38	205.10	3.01	3.13
rio7.1	Reach 1	0.09676	T=200	10.40	203.00	203.65	204.32	7.39	1.35	205.00	1.36	205.01	2.79	2.96
rio7.1	Reach 1	0.09468	T=200	10.40	202.90	203.56	204.21	7.13	1.34	204.90	1.34	204.90	2.59	2.81
rio7.1	Reach 1	0.09463	T=200	10.40	202.50	203.11	203.81	7.66	1.39	204.50	1.39	204.50	2.99	3.13
rio7.1	Reach 1	0.09245	T=200	10.40	202.39	203.03	203.70	7.32	1.36	204.39	1.36	204.39	2.73	2.92
rio7.1	Reach 1	0.09068	T=200	10.40	202.30	202.97	203.61	7.09	1.33	204.30	1.33	204.30	2.56	2.78
rio7.1	Reach 1	0.09064	T=200	10.40	201.90	202.52	203.21	7.62	1.38	203.90	1.38	203.90	2.96	3.10
rio7.1	Reach 1	0.08865	T=200	10.40	201.80	202.44	203.11	7.33	1.36	203.80	1.36	203.80	2.74	2.92
rio7.1	Reach 1	0.08667	T=200	10.40	201.70	202.37	203.01	7.07	1.33	203.70	1.33	203.70	2.55	2.77
rio7.1	Reach 1	0.08664	T=200	10.40	201.30	201.92	202.61	7.61	1.38	203.30	1.38	203.30	2.95	3.09
rio7.1	Reach 1	0.08444	T=200	10.40	201.19	201.84	202.50	7.27	1.36	203.20	1.35	203.19	2.70	2.88
rio7.1	Reach 1	0.08248	T=200	10.40	201.10	201.75	202.38	7.06	1.35	203.10	1.35	203.10	2.54	2.80
rio7.1	Reach 1	0.08244	T=200	10.40	200.70	201.30	201.98	7.59	1.40	202.70	1.40	202.70	2.94	3.13
rio7.1	Reach 1	0.08043	T=200	10.40	200.59	201.25	201.90	7.26	1.34	202.59	1.35	202.60	2.69	2.88
rio7.1	Reach 1	0.07846	T=200	10.40	200.50	201.17	201.81	7.00	1.33	202.50	1.33	202.50	2.50	2.73
rio7.1	Reach 1	0.07841	T=200	10.40	200.10	200.72	201.41	7.54	1.38	202.10	1.38	202.10	2.90	3.05
rio7.1	Reach 1	0.07430	T=200	10.40	199.89	200.57	201.20	6.99	1.33	201.90	1.32	201.89	2.49	2.72
rio7.1	Reach 1	0.07043	T=200	10.40	199.70	200.42	201.01	6.58	1.28	201.70	1.28	201.70	2.21	2.49
rio7.1	Reach 1	0.07039	T=200	10.40	199.30	199.96	200.61	7.17	1.34	201.30	1.34	201.30	2.62	2.82
rio7.1	Reach 1	0.06646	T=200	10.40	199.10	199.80	200.41	6.73	1.30	201.10	1.30	201.10	2.31	2.56
rio7.1	Reach 1	0.06243	T=200	10.40	198.90	199.64	200.21	6.37	1.26	200.90	1.26	200.90	2.07	2.36
rio7.1	Reach 1	0.06239	T=200	10.40	198.50	199.18	199.81	6.99	1.32	200.50	1.32	200.50	2.49	2.72
rio7.1	Reach 1	0.05822	T=200	10.40	198.29	199.01	199.60	6.57	1.28	200.29	1.28	200.29	2.20	2.48
rio7.1	Reach 1	0.05443	T=200	10.40	198.10	198.85	199.41	6.27	1.25	200.10	1.25	200.10	2.01	2.31
rio7.1	Reach 1	0.05440	T=200	10.40	197.70	198.38	199.01	6.90	1.32	199.70	1.32	199.70	2.43	2.67
rio7.1	Reach 1	0.05055	T=200	10.40	197.50	198.23	198.82	6.52	1.27	199.50	1.28	199.51	2.17	2.45

HEC-RAS Plan: Plan 01 Profile: T=200 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
rio7.1	Reach 1	0.04643	T=200	10.40	197.30	198.06	198.61	6.22	1.24	199.30	1.24	199.30	1.97	2.28
rio7.1	Reach 1	0.04640	T=200	10.40	196.90	197.59	198.21	6.86	1.31	198.90	1.31	198.90	2.40	2.65
rio7.1	Reach 1	0.04239	T=200	10.40	196.39	197.07	197.71	7.03	1.34	198.41	1.32	198.39	2.52	2.74
rio7.1	Reach 1	0.03841	T=200	10.40	195.90	196.56	197.21	7.16	1.34	197.90	1.34	197.90	2.62	2.82
rio7.1	Reach 1	0.03837	T=200	10.40	195.00	195.57	196.31	8.30	1.43	197.00	1.43	197.00	3.51	3.51
rio7.1	Reach 1	0.03415	T=200	10.40	194.79	195.42	196.10	7.54	1.37	196.79	1.37	196.79	2.90	3.05
rio7.1	Reach 1	0.03039	T=200	10.40	194.60	195.27	195.91	7.02	1.33	196.60	1.33	196.60	2.51	2.74
rio7.1	Reach 1	0.03034	T=200	10.40	193.60	194.17	194.91	8.30	1.43	195.60	1.43	195.60	3.51	3.52
rio7.1	Reach 1	0.02836	T=200	10.40	193.50	194.09	194.81	7.92	1.41	195.50	1.41	195.50	3.20	3.28
rio7.1	Reach 1	0.02638	T=200	10.40	193.40	194.02	194.71	7.58	1.38	195.40	1.38	195.40	2.93	3.07
rio7.1	Reach 1	0.02635	T=200	10.40	192.40	192.94	193.71	8.75	1.46	194.40	1.46	194.40	3.91	3.80
rio7.1	Reach 1	0.02436	T=200	10.40	192.30	192.87	193.62	8.31	1.43	194.30	1.43	194.30	3.52	3.53
rio7.1	Reach 1	0.02239	T=200	10.40	192.20	192.79	193.51	7.93	1.41	194.20	1.41	194.20	3.21	3.29
rio7.1	Reach 1	0.02235	T=200	10.40	191.60	192.15	192.91	8.62	1.45	193.60	1.45	193.60	3.79	3.73
rio7.1	Reach 1	0.01805	T=200	10.40	191.39	192.00	192.70	7.76	1.39	193.39	1.39	193.39	3.07	3.18
rio7.1	Reach 1	0.01425	T=200	10.40	191.20	191.84	192.50	7.21	1.36	193.20	1.36	193.20	2.65	2.88
rio7.1	Reach 1	0.01018	T=200	10.40	191.00	191.70	192.31	6.71	1.30	193.00	1.30	193.00	2.29	2.56
rio7.1	Reach 1	0.00607	T=200	10.40	190.80	191.55	192.12	6.32	1.26	192.81	1.25	192.80	2.04	2.34
rio7.1	Reach 1	0.00393	T=200	10.40	190.70	191.46	192.01	6.18	1.24	192.70	1.24	192.70	1.95	2.26
rio7	Reach 1	0.07652	T=200	10.40	199.26	199.80	200.48	9.46	2.58	202.38	4.20	204.00	4.56	4.91
rio7	Reach 1	0.07153	T=200	10.40	196.25	196.73	197.34	9.29	1.62	198.35	6.29	203.02	4.40	5.20
rio7	Reach 1	0.06652	T=200	10.40	194.11	194.85	195.55	8.36	3.01	197.86	6.69	201.54	3.56	3.79
rio7	Reach 1	0.06142	T=200	10.40	191.29	191.93	192.58	8.91	4.16	196.09	7.21	199.14	4.04	4.67
rio7	Reach 1	0.05642	T=200	10.40	189.00	189.44	190.10	8.57	2.56	192.00	2.56	192.00	3.75	4.31
rio7	Reach 2	0.05129	T=200	10.40	188.74	189.35	189.85	6.06	2.39	191.74	2.40	191.75	1.87	2.65
rio7	Reach 2	0.04640	T=200	10.40	188.50	189.24	189.60	4.80	2.26	191.50	2.26	191.50	1.18	1.91
rio7	Reach 2	0.03669	T=200	10.40	188.01	188.90	189.11	3.88	2.11	191.01	2.11	191.01	0.77	1.42
rio7	Reach 2	0.03095	T=200	10.40	187.52	188.69	188.89	3.69	1.57	190.26	2.31	191.00	0.69	1.41
rio7	Reach 2	0.02564	T=200	10.40	184.84	185.67	186.30	7.64	4.25	189.92	2.33	188.00	2.98	3.52
rio7	Reach 2	0.02050	T=200	10.40	183.78	184.40	185.00	7.20	4.40	188.80	1.10	185.50	2.64	3.26
rio7	Reach 2	0.01031	T=200	10.40	179.43	180.31	181.02	8.20	4.88	185.19	1.69	182.00	3.43	3.61
rio7	Reach 2	0.00496	T=200	10.40	175.61	176.18	176.88	9.61	3.95	180.13	3.82	180.00	4.71	5.18
rio7	Reach 2	0.00000	T=200	10.40	172.48	173.19	174.05	9.57	2.01	175.20	3.81	177.00	4.67	4.12

HEC-RAS Plan: Plan 01 Profile: T=200

River	Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
				(m)	(m)	(m3/s)
rio7	Reach 1	0.05642	T=200	189.44	193.19	10.40
rio7.1	Reach 1	0.00393	T=200	191.46	193.41	10.40
Junction:	2					
rio7	Reach 2	0.05129	T=200	189.35	191.22	10.40

VERIFICA IDRAULICA

RIO 6 - Tratto intermedio

FASE FINALE

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

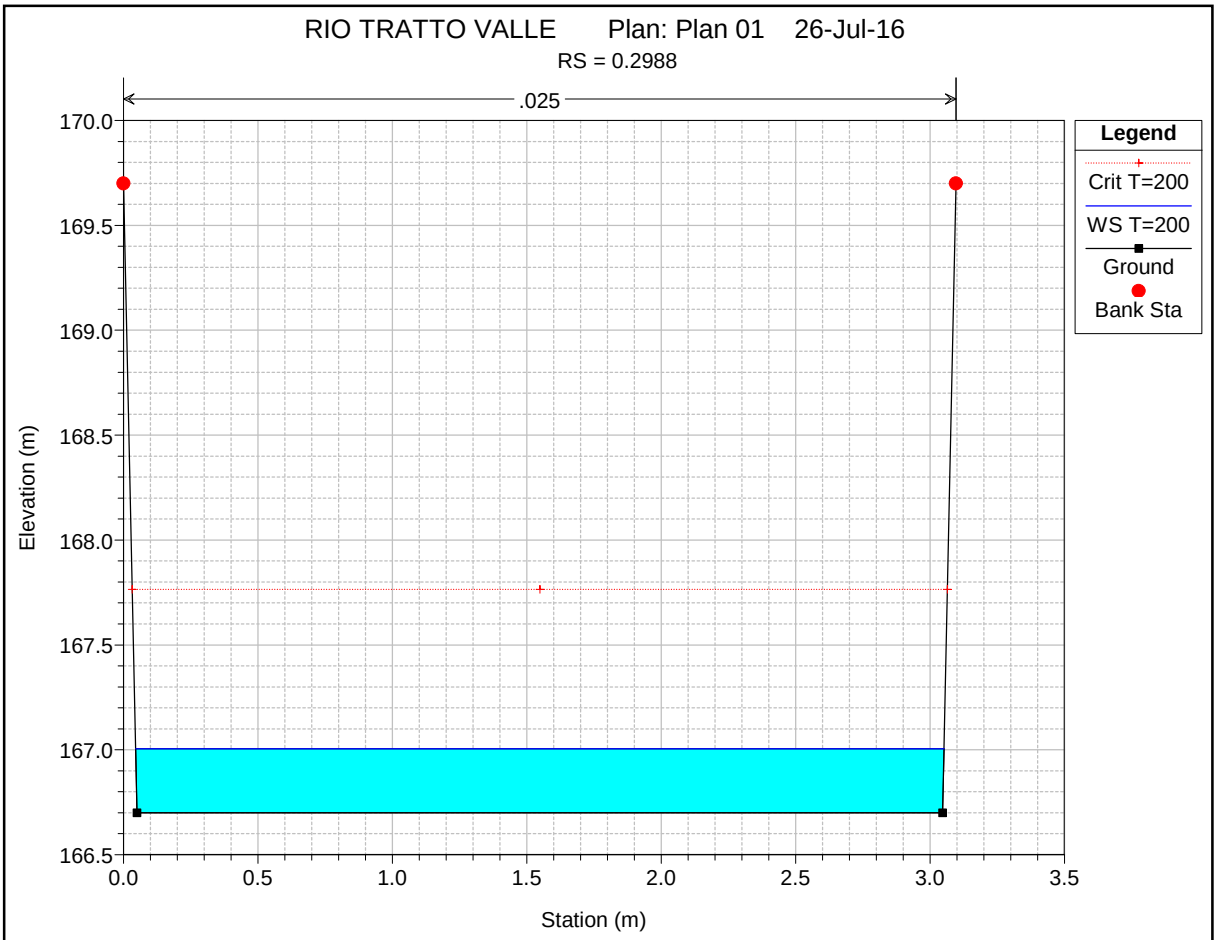
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

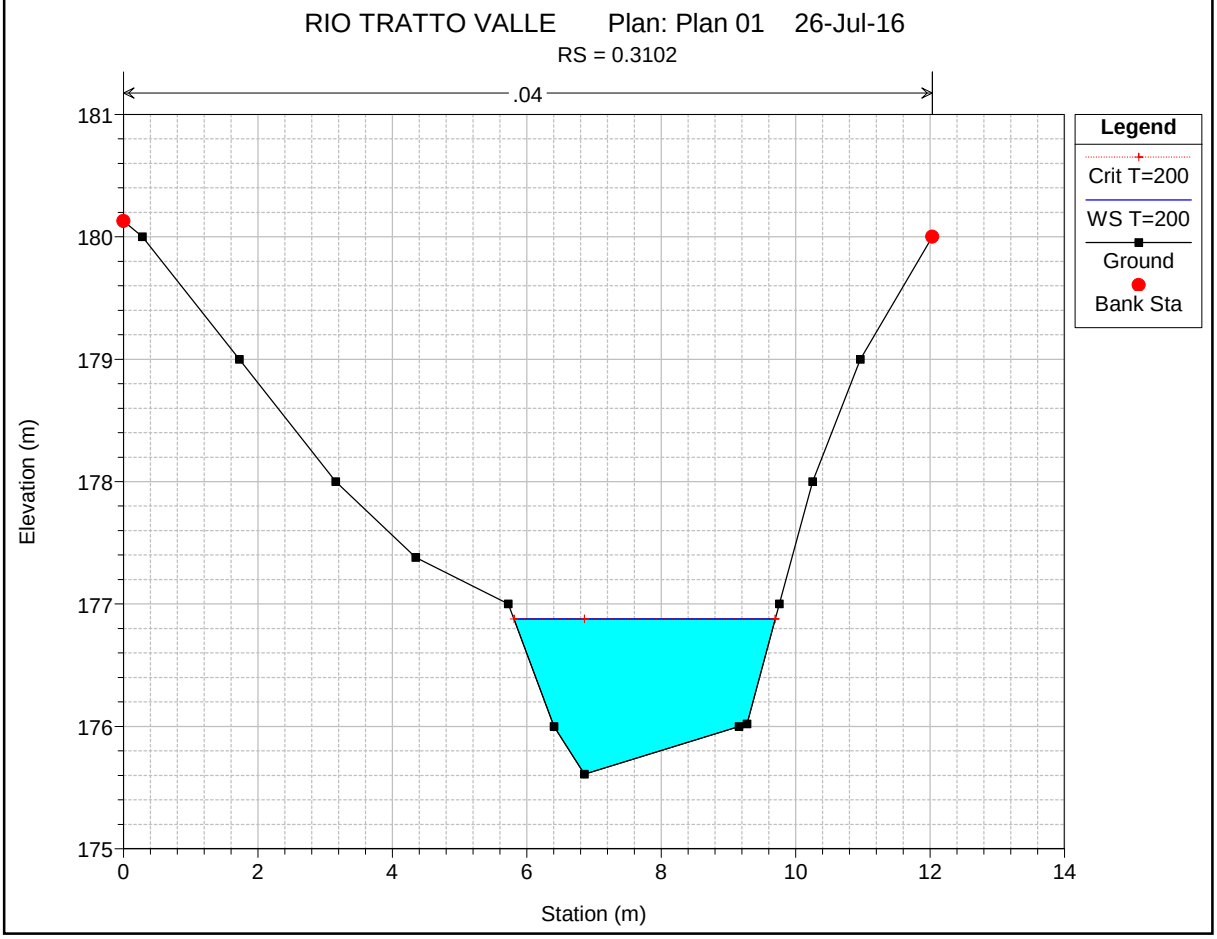
Vel Chnl = Velocità della corrente nel canale.

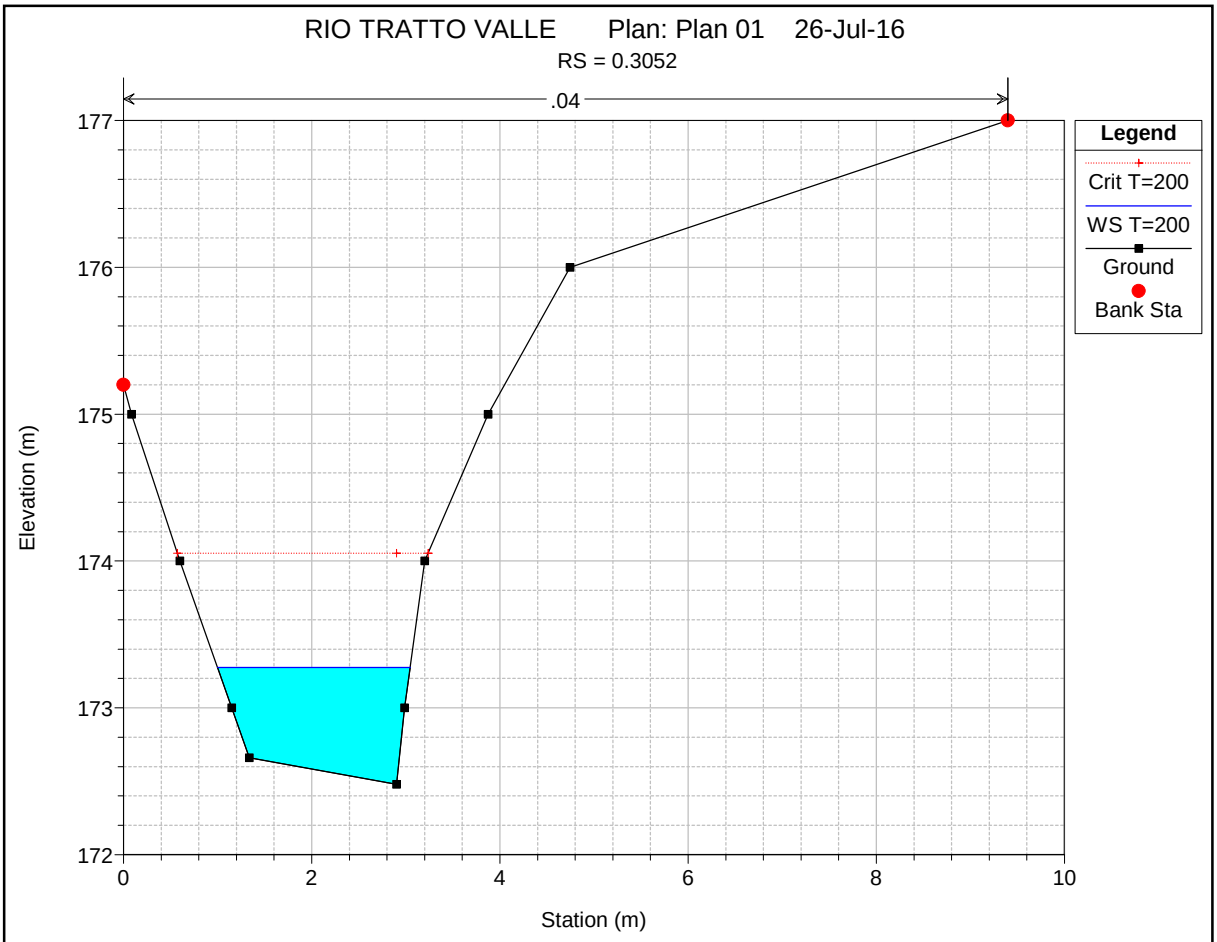
Froude = n° di froude della corrente.

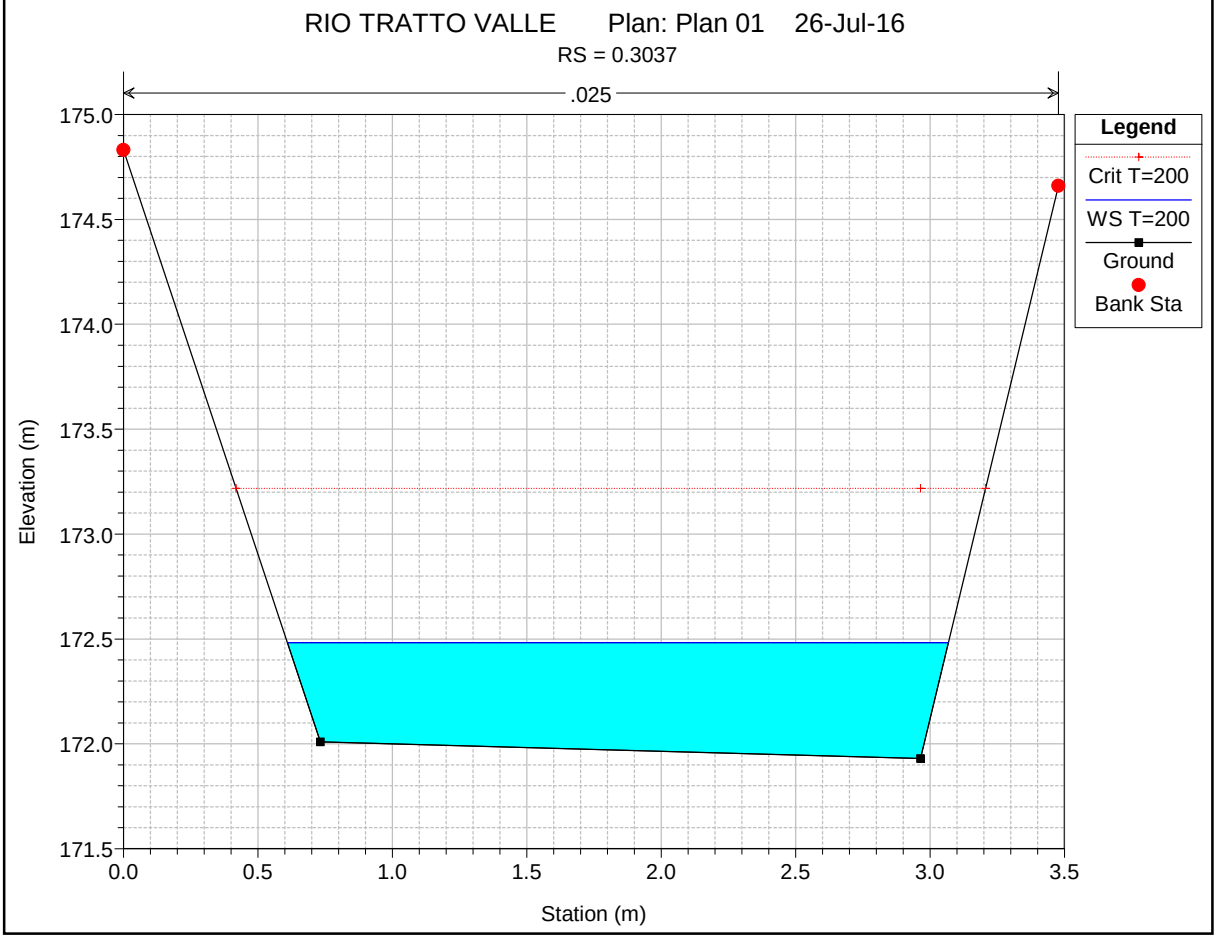
Vel. Head = $U^2/2g$.

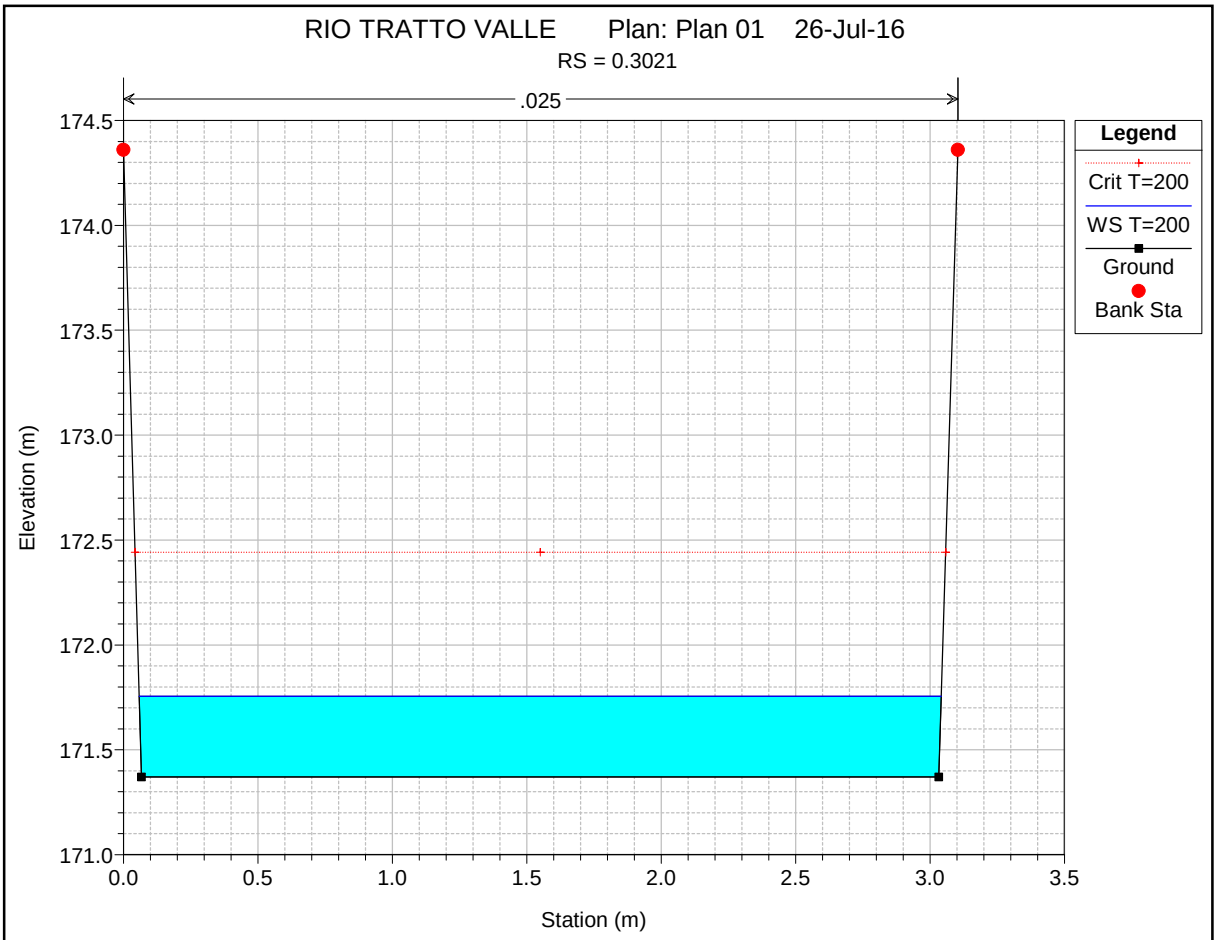
STATO di PROGETTO

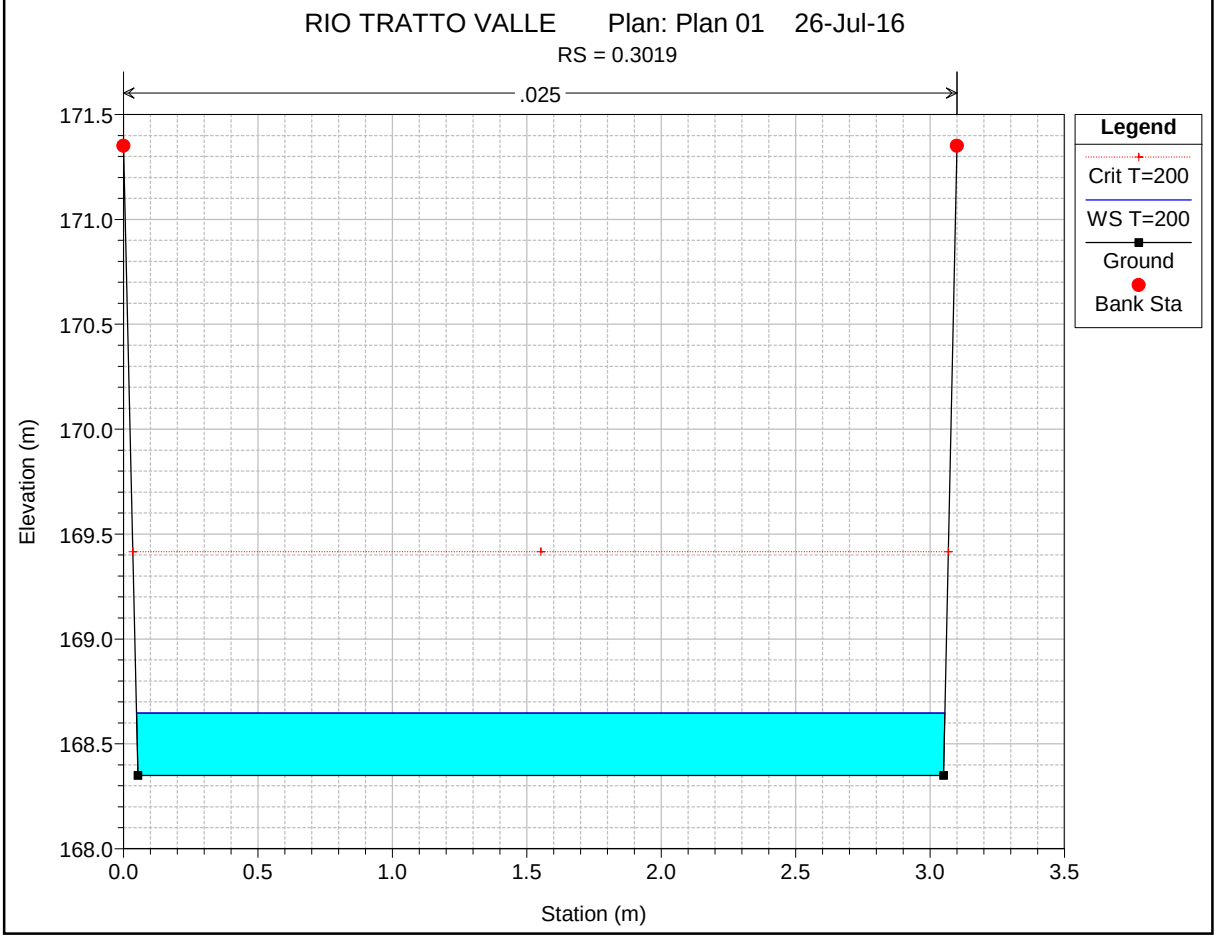

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2988
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
170.0
169.5
169.0
168.5
168.0
167.5
167.0
166.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.3102
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
181
180
179
178
177
176
175
0
2
4
6
8
10
12
14


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.3052
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
177
176
175
174
173
172
0
2
4
6
8
10

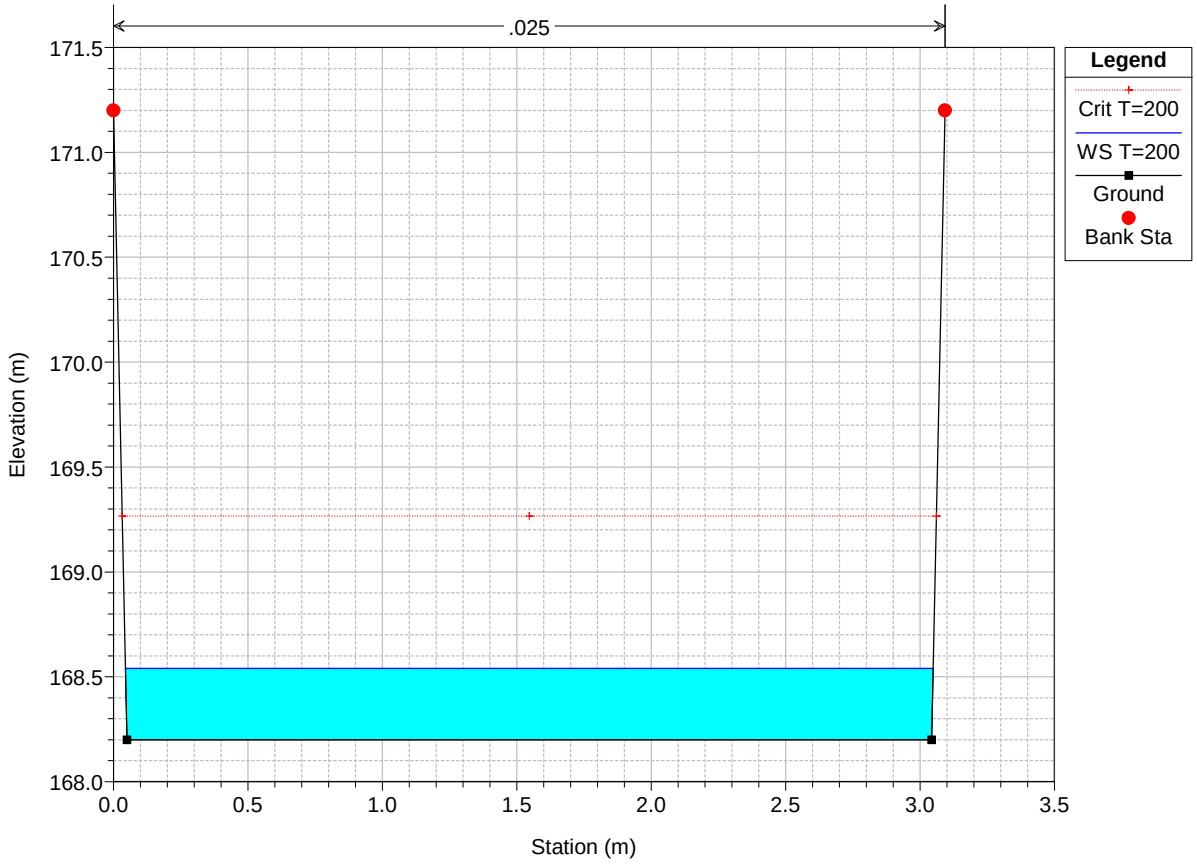

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.3037
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
175.0
174.5
174.0
173.5
173.0
172.5
172.0
171.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.3021
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
174.5
174.0
173.5
173.0
172.5
172.0
171.5
171.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.3019
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
171.5
171.0
170.5
170.0
169.5
169.0
168.5
168.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

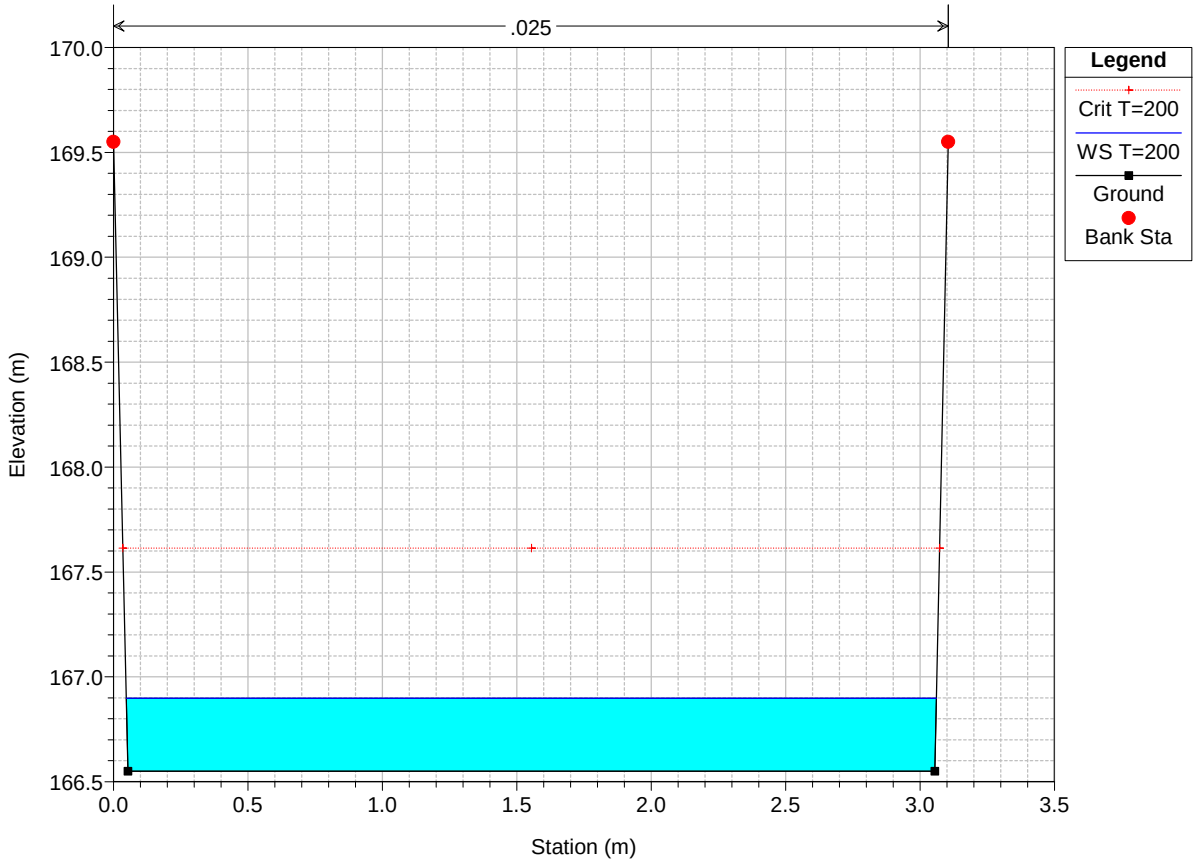
RIO TRATTO VALLE Plan: Plan 01 26-Jul-16

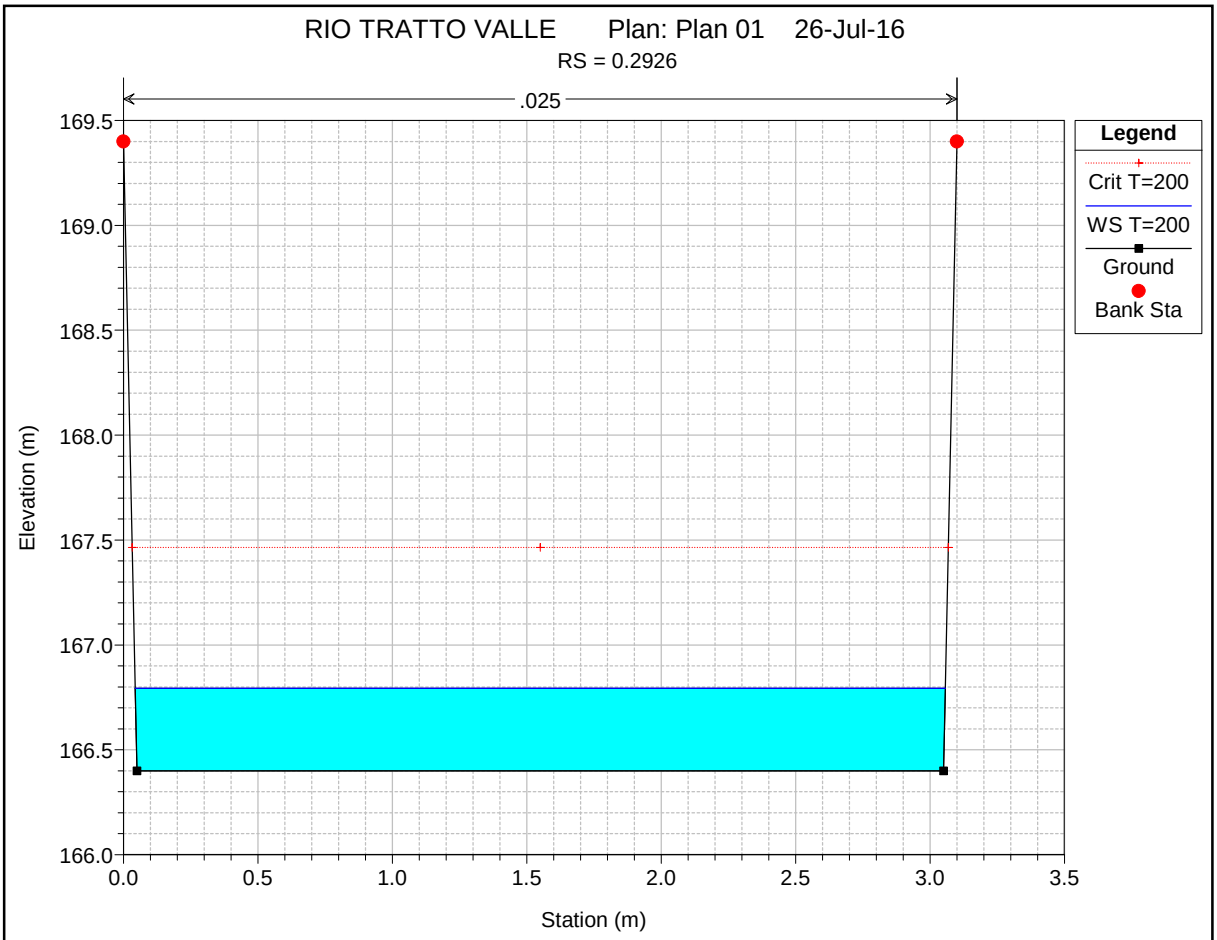
RS = 0.2990

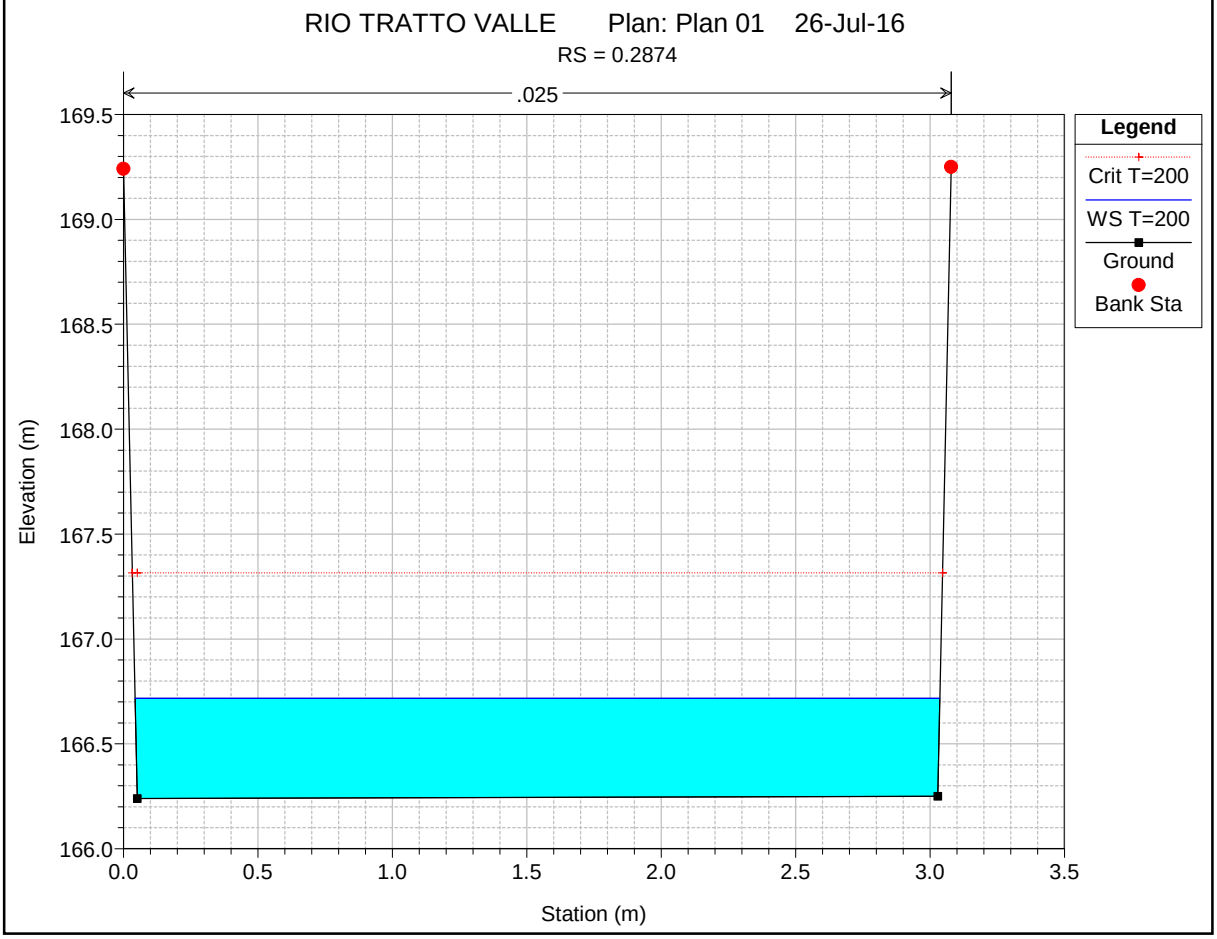


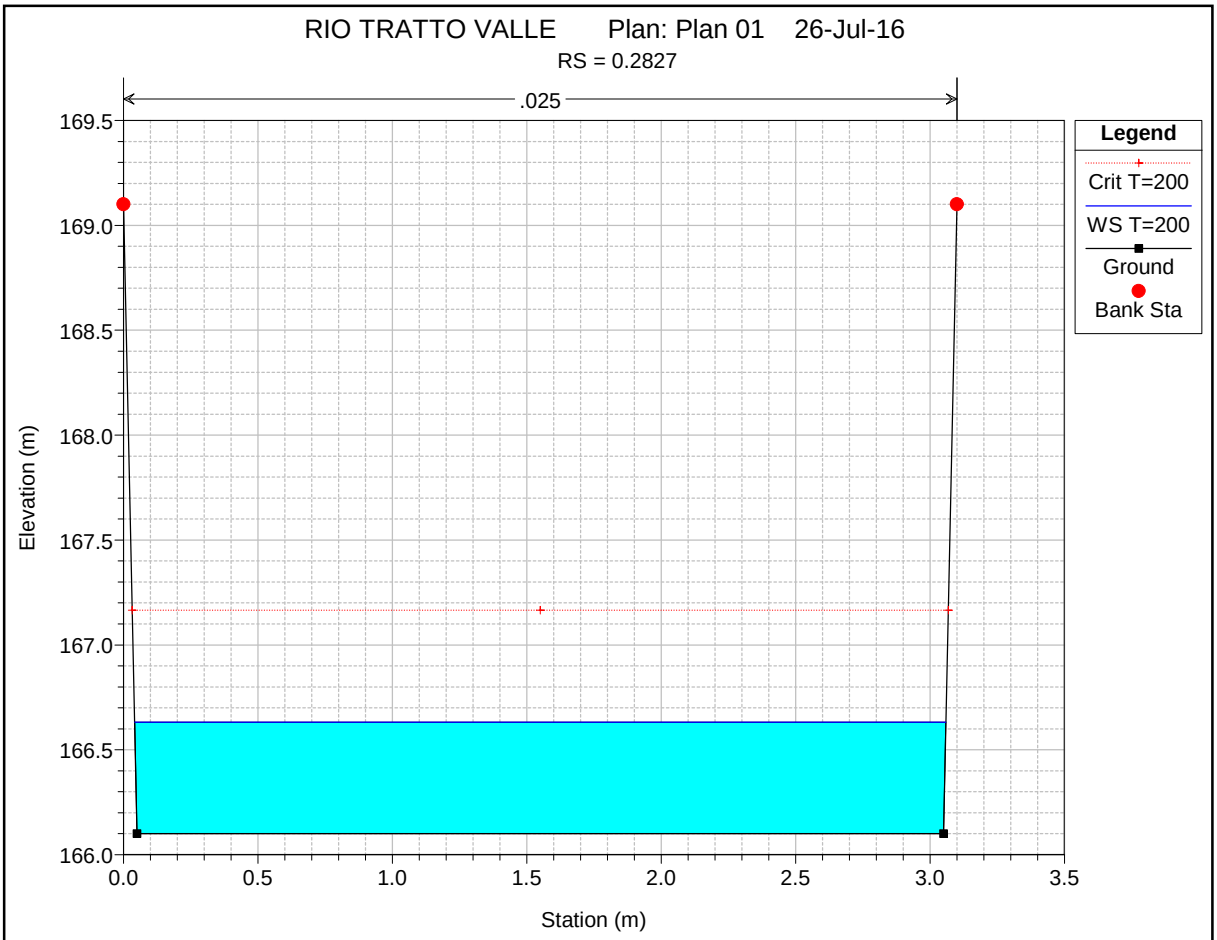
RIO TRATTO VALLE Plan: Plan 01 26-Jul-16

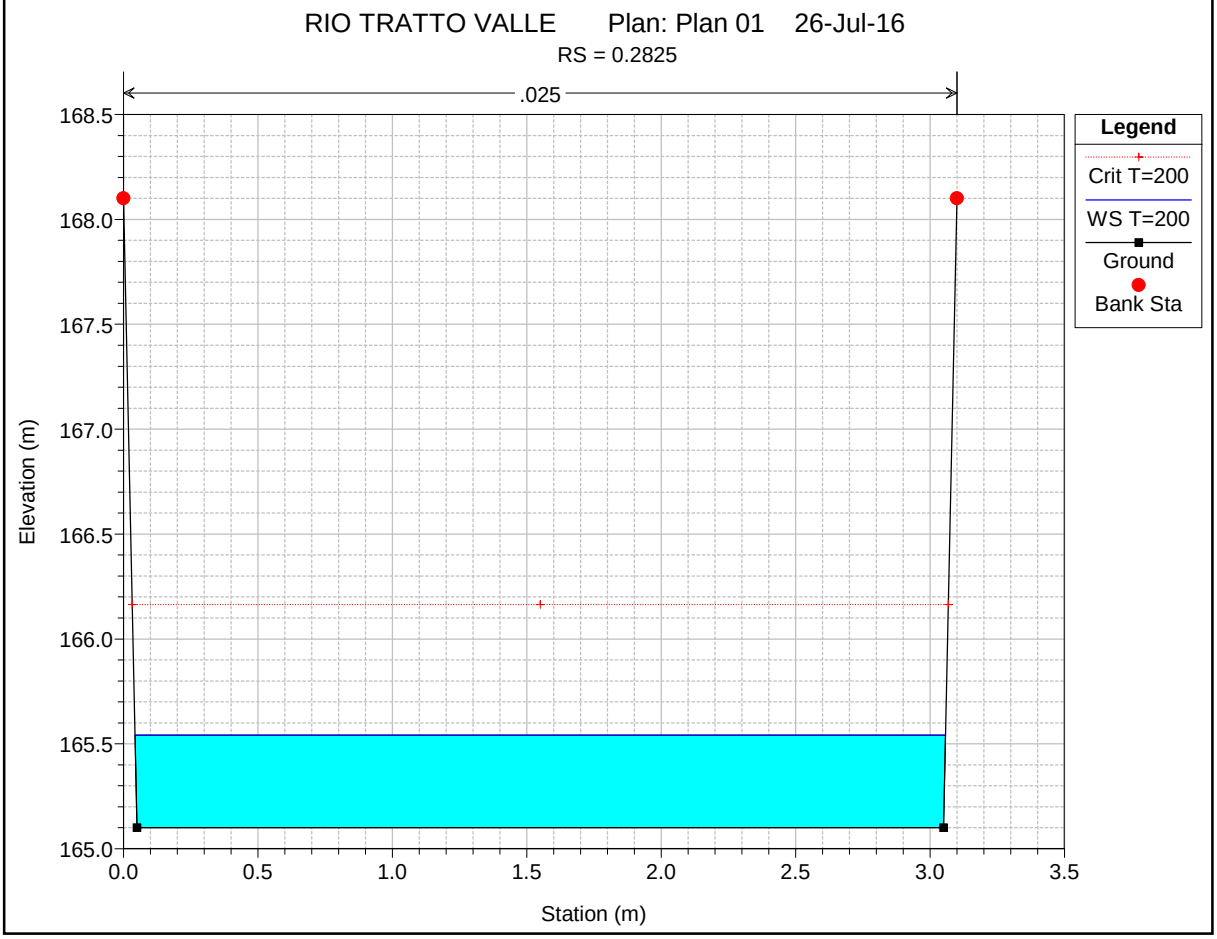
RS = 0.2958

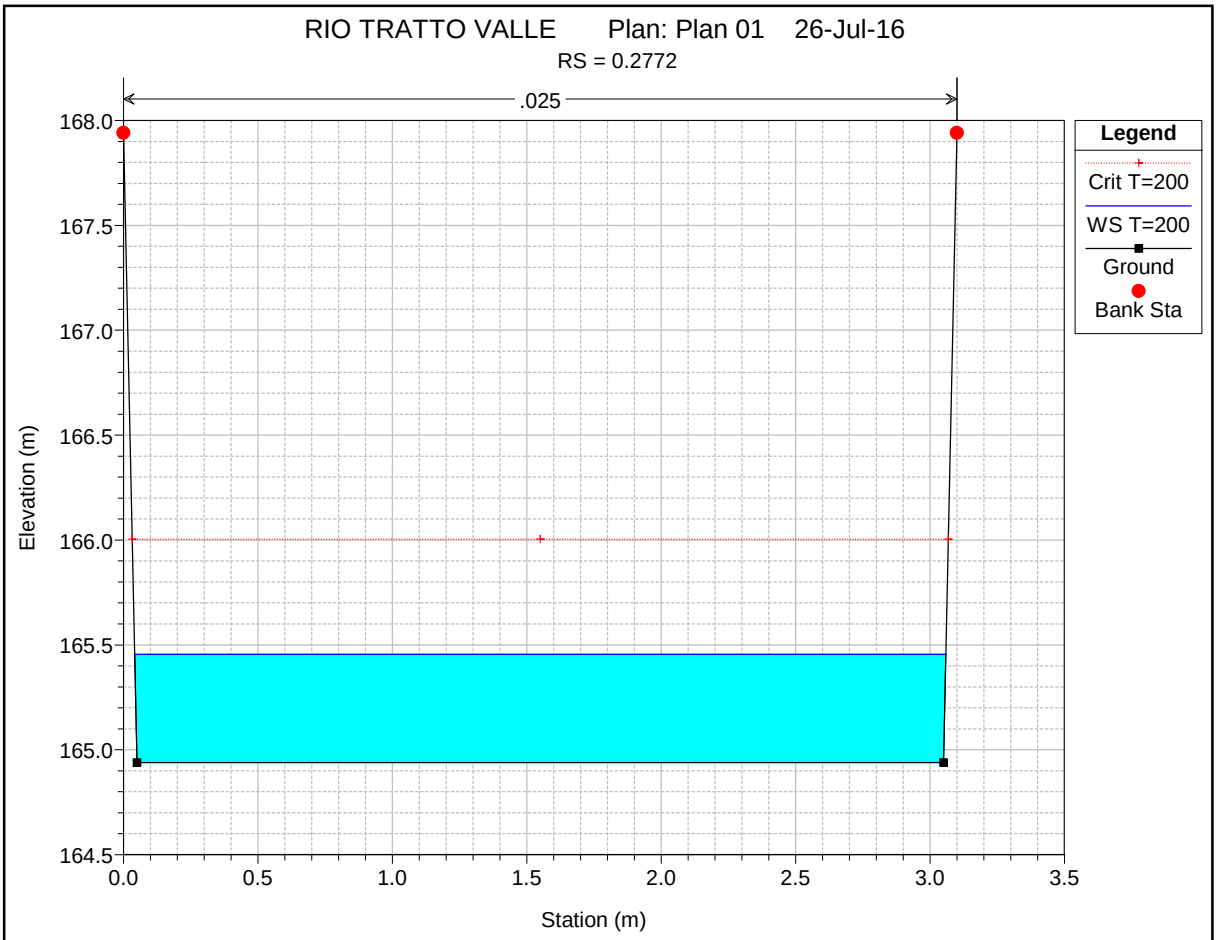


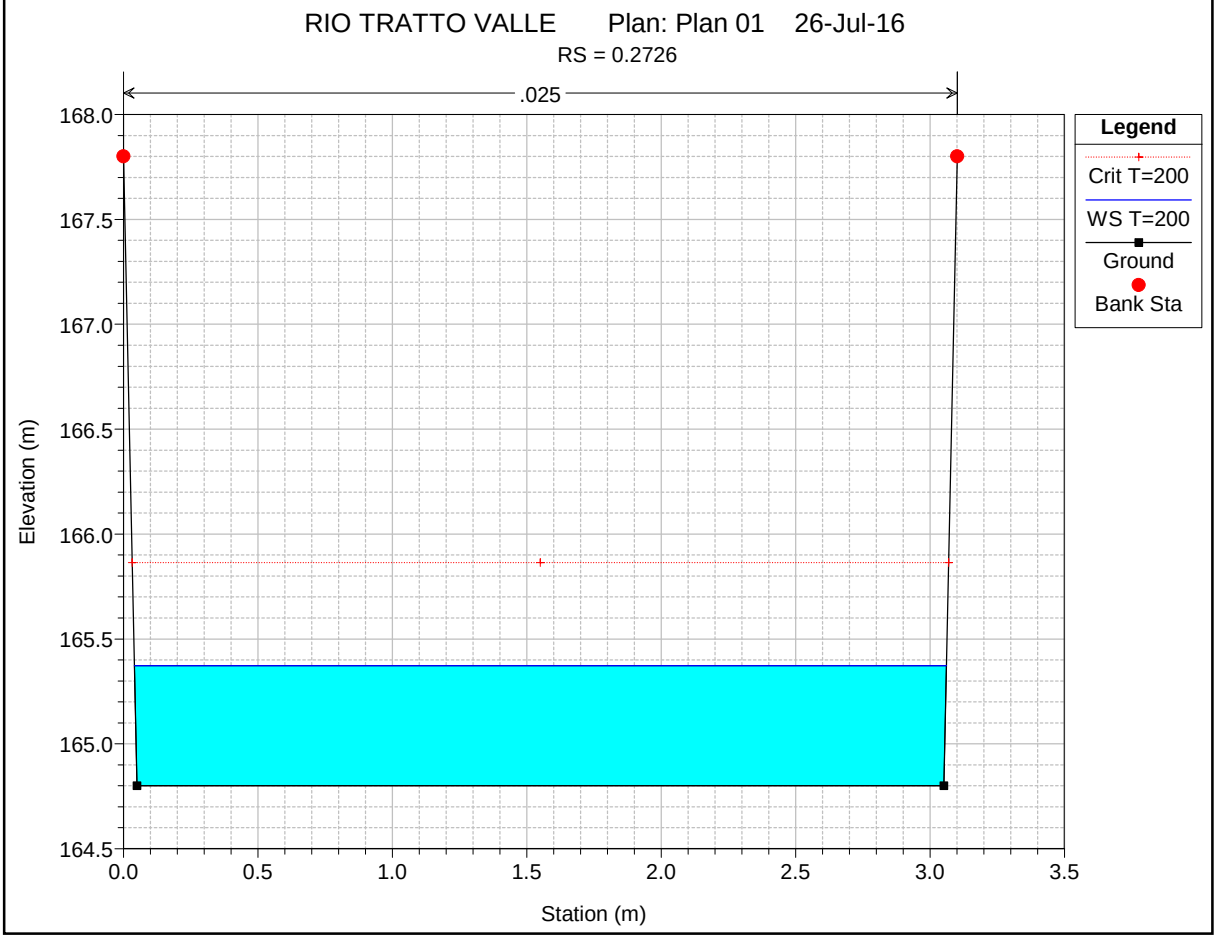

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2926
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
169.5
169.0
168.5
168.0
167.5
167.0
166.5
166.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

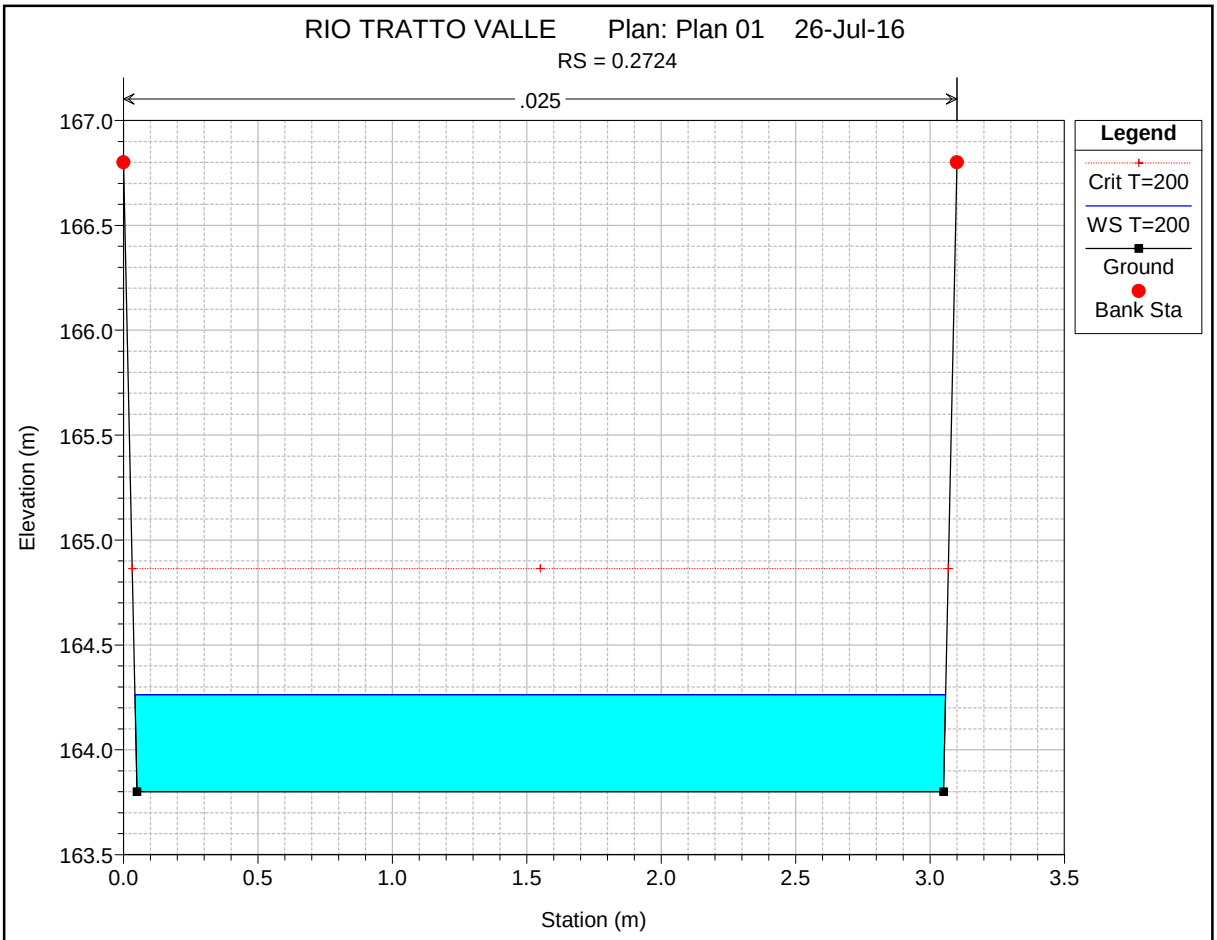

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2874
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
169.5
169.0
168.5
168.0
167.5
167.0
166.5
166.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

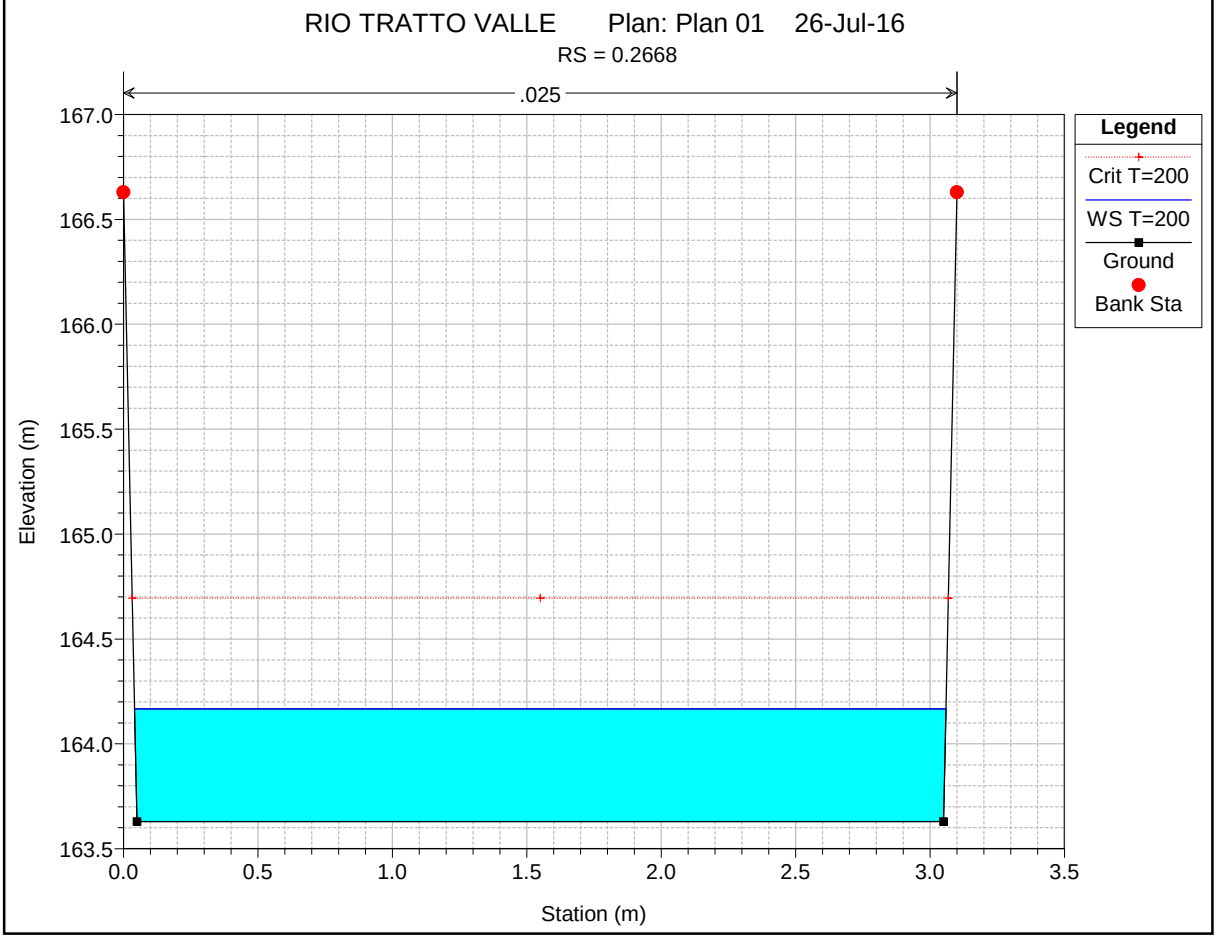

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2827
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
169.5
169.0
168.5
168.0
167.5
167.0
166.5
166.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

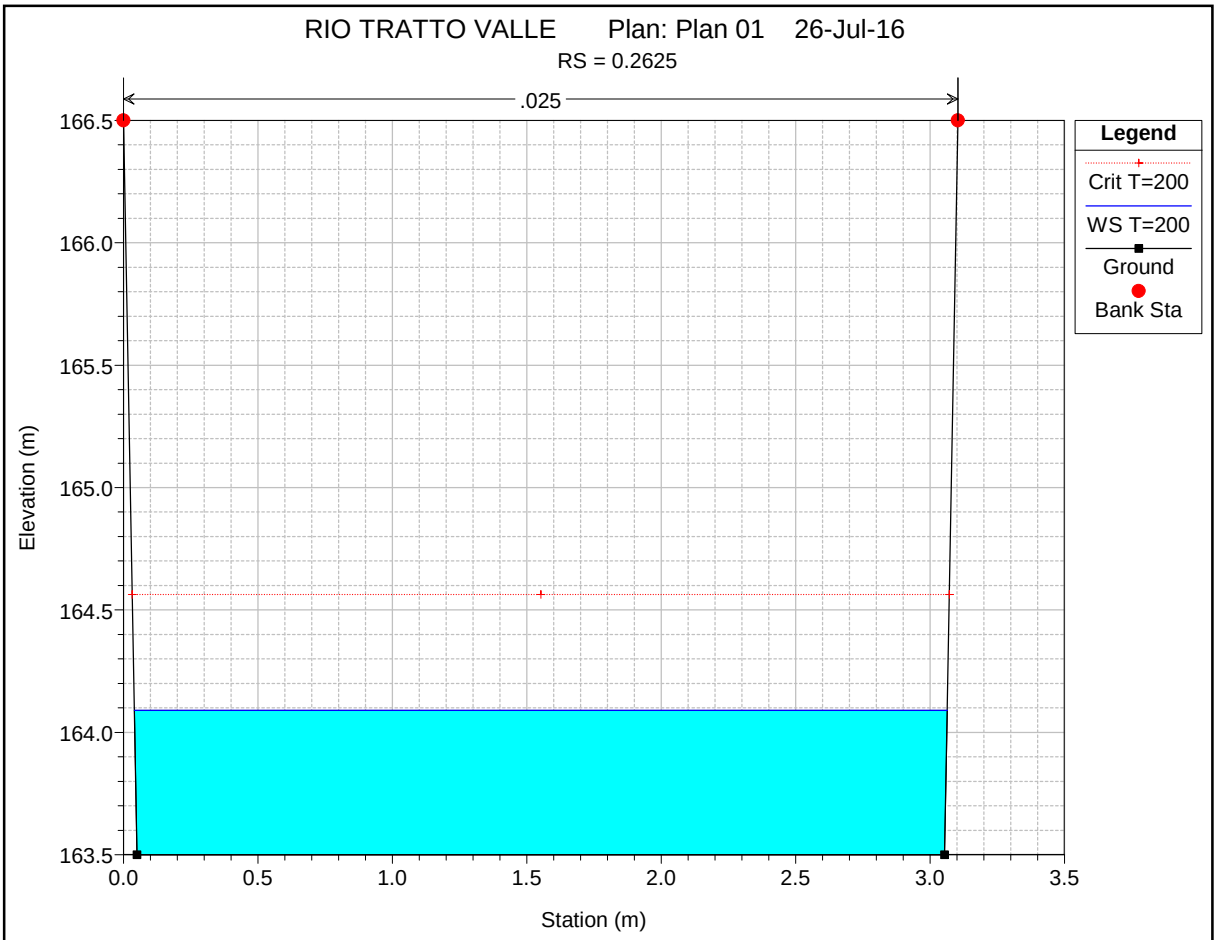

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2825
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
168.5
168.0
167.5
167.0
166.5
166.0
165.5
165.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

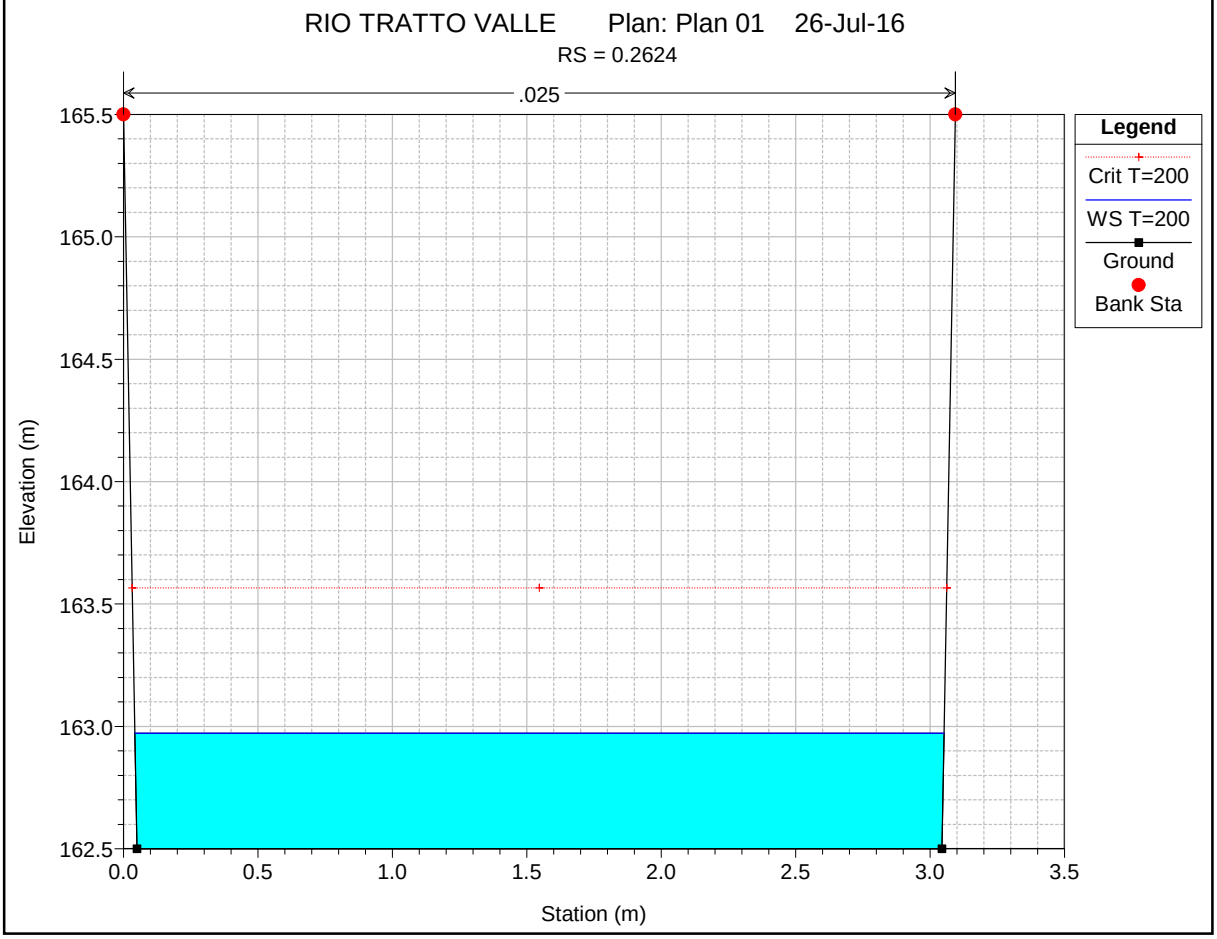

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2772
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
168.0
167.5
167.0
166.5
166.0
165.5
165.0
164.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

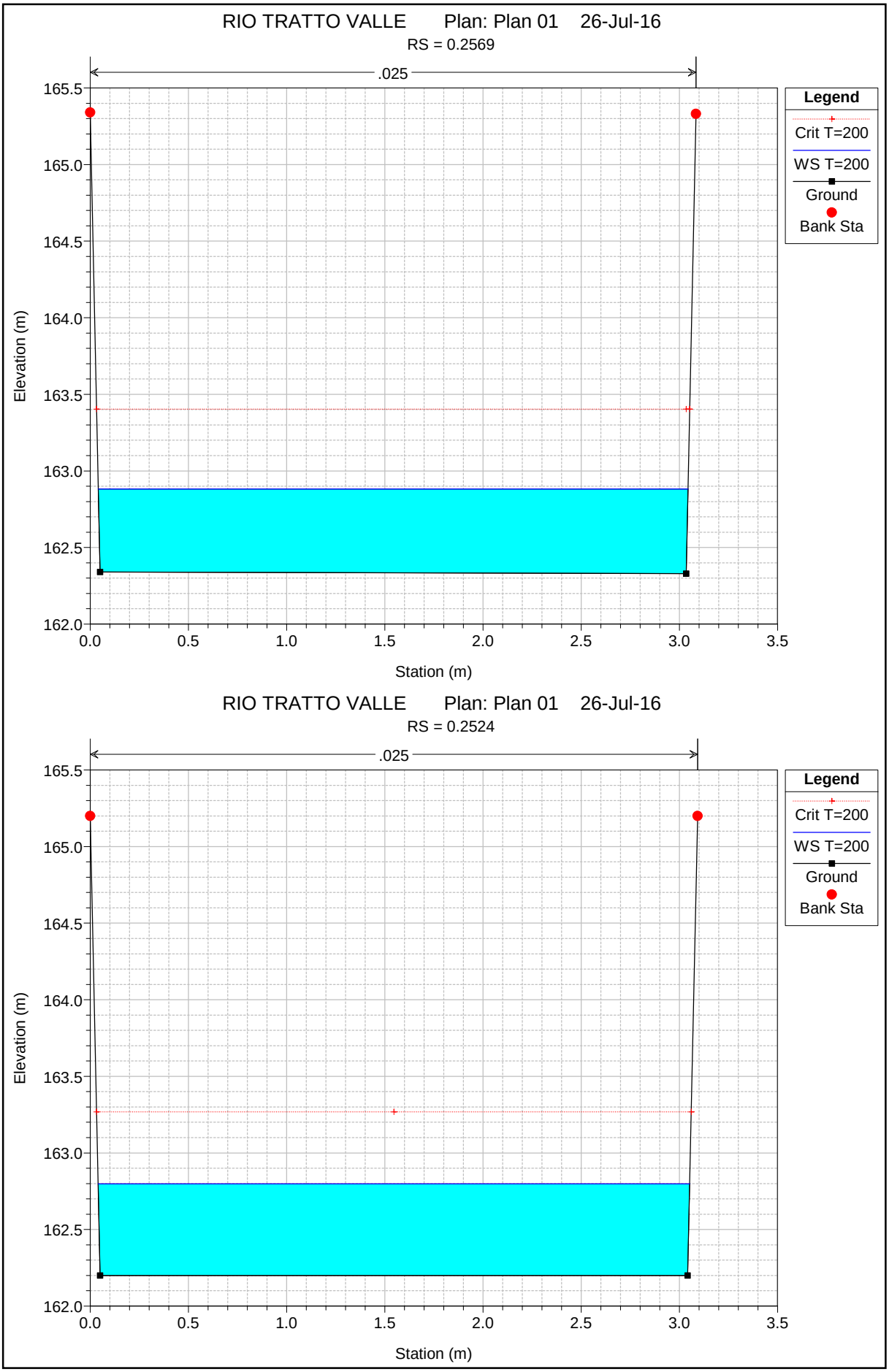

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2726
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
168.0
167.5
167.0
166.5
166.0
165.5
165.0
164.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

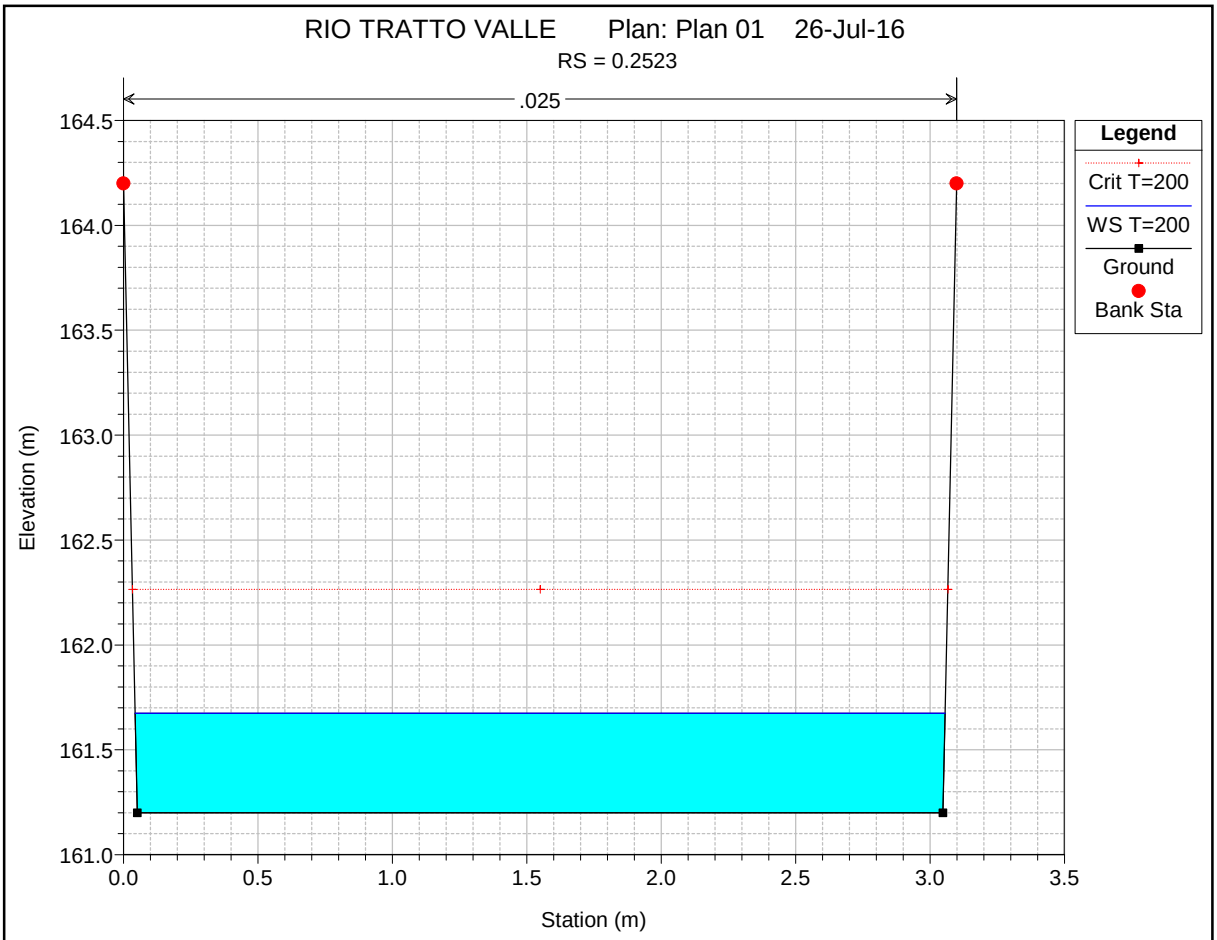

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2724
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
167.0
166.5
166.0
165.5
165.0
164.5
164.0
163.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

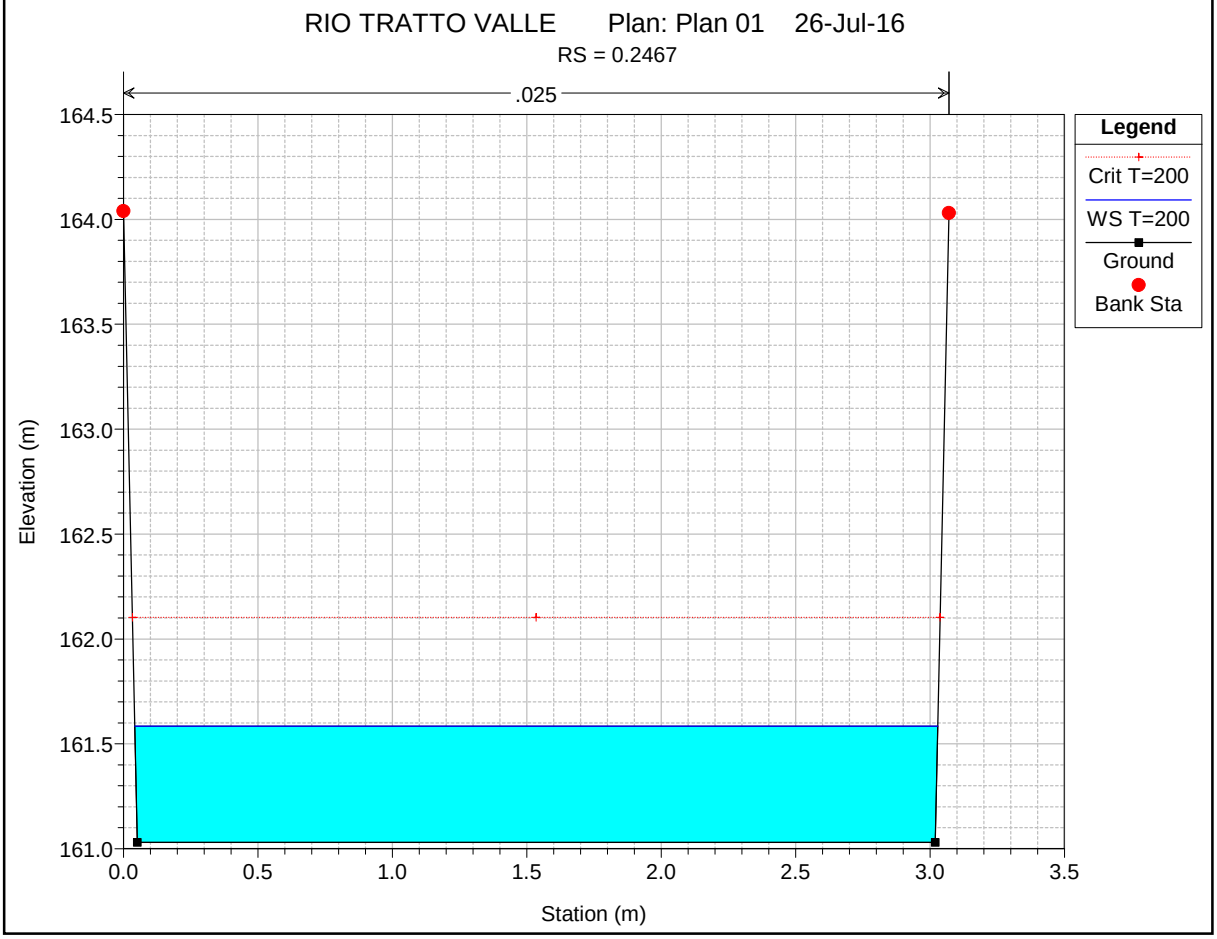

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2668
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
167.0
166.5
166.0
165.5
165.0
164.5
164.0
163.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

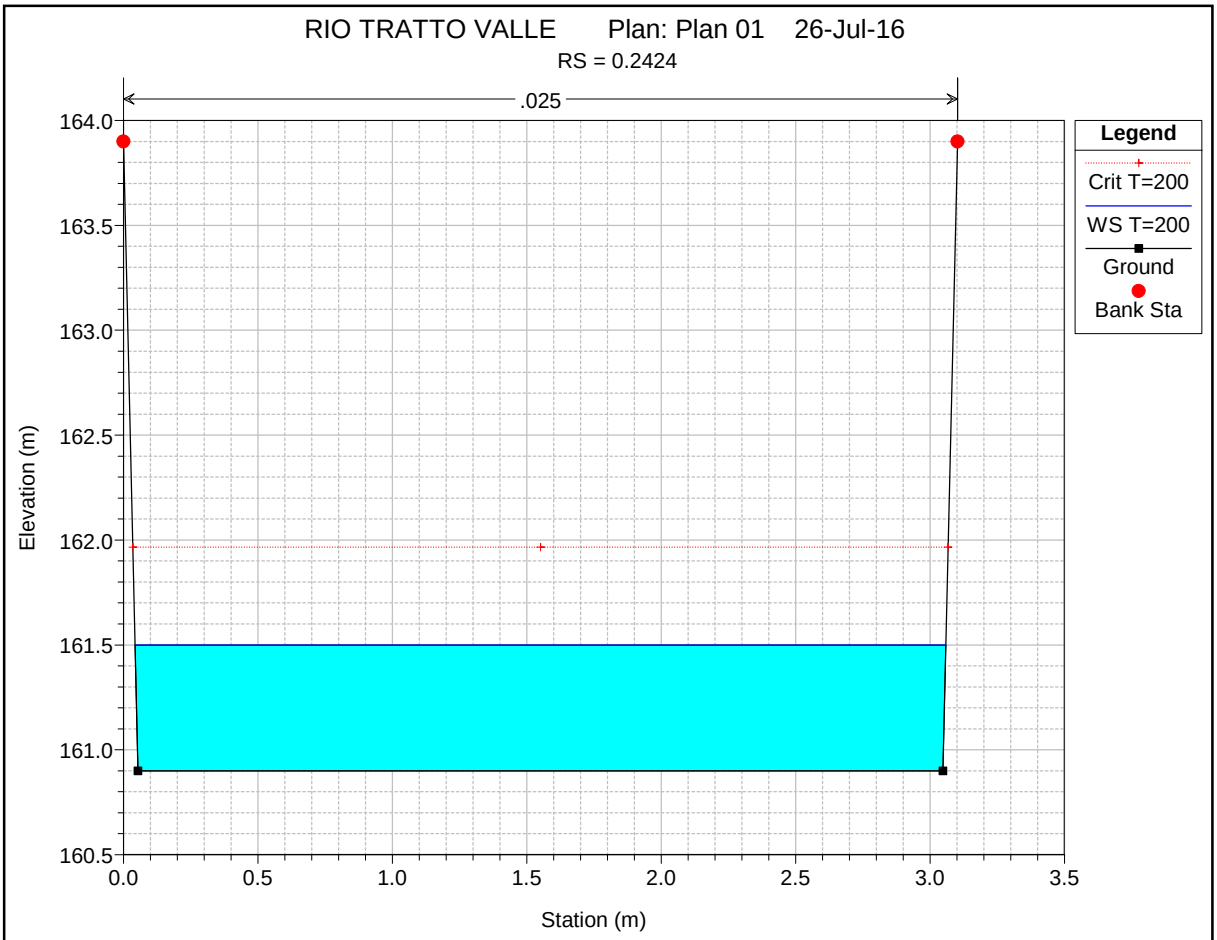

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2625
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
166.5
166.0
165.5
165.0
164.5
164.0
163.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

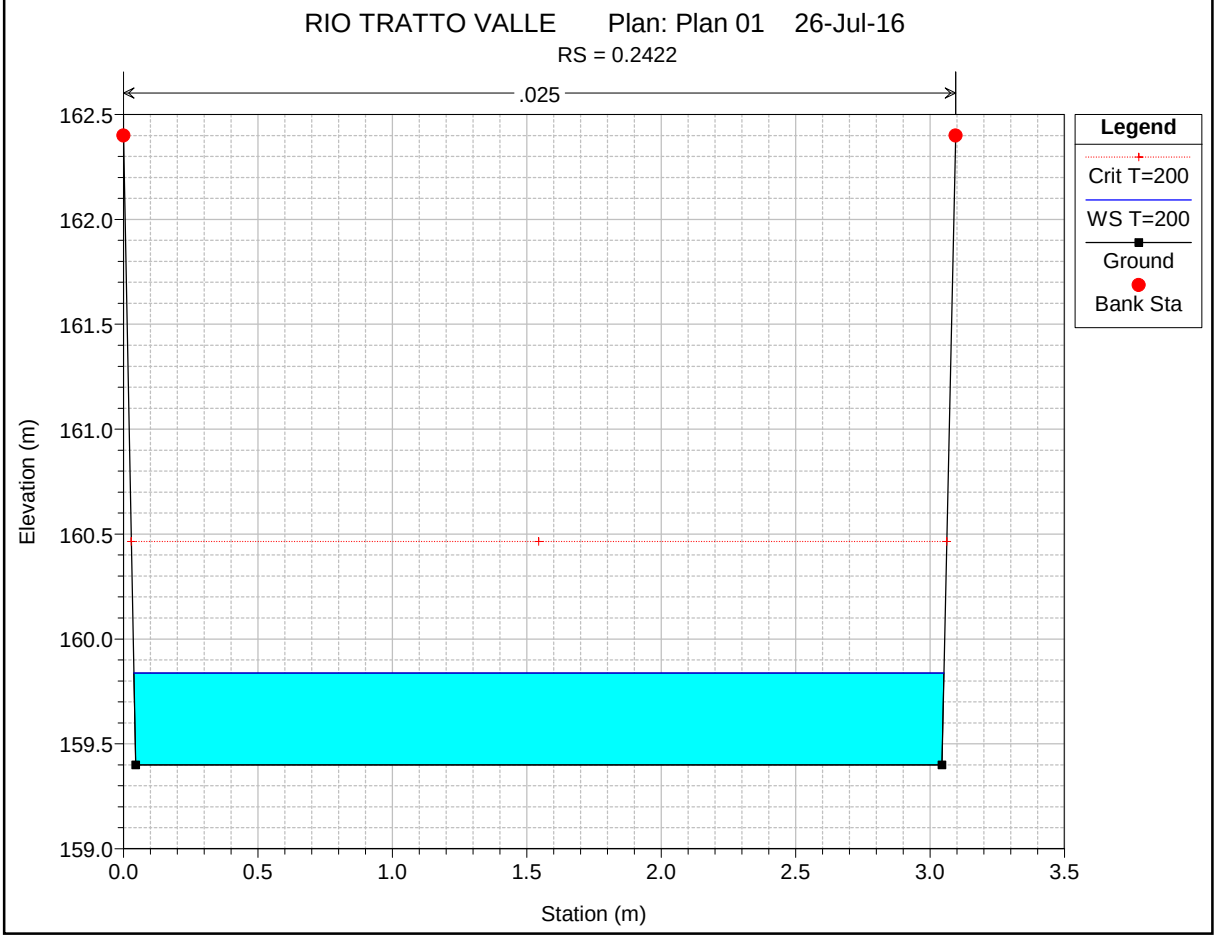

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2624
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
165.5
165.0
164.5
164.0
163.5
163.0
162.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)

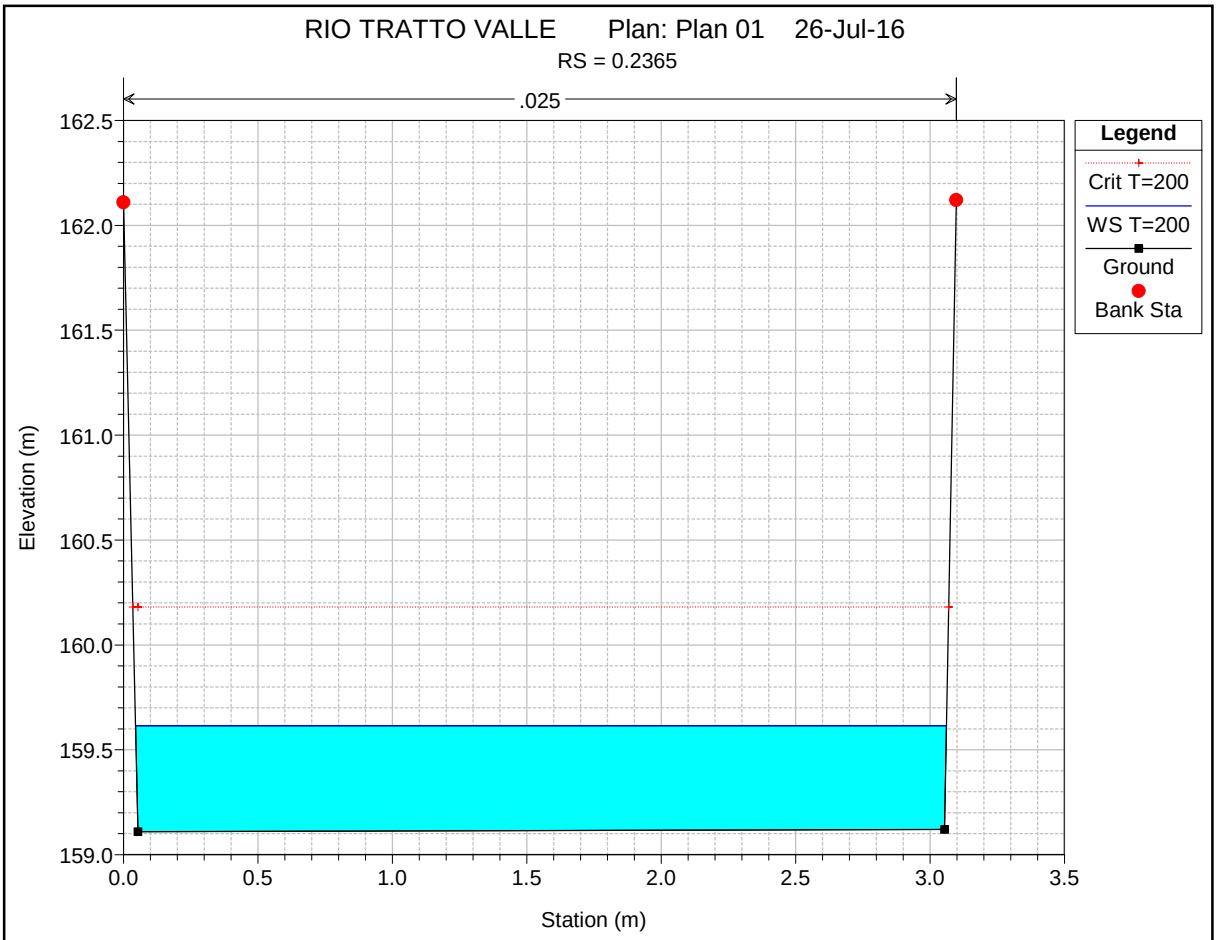

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2569
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2524
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)

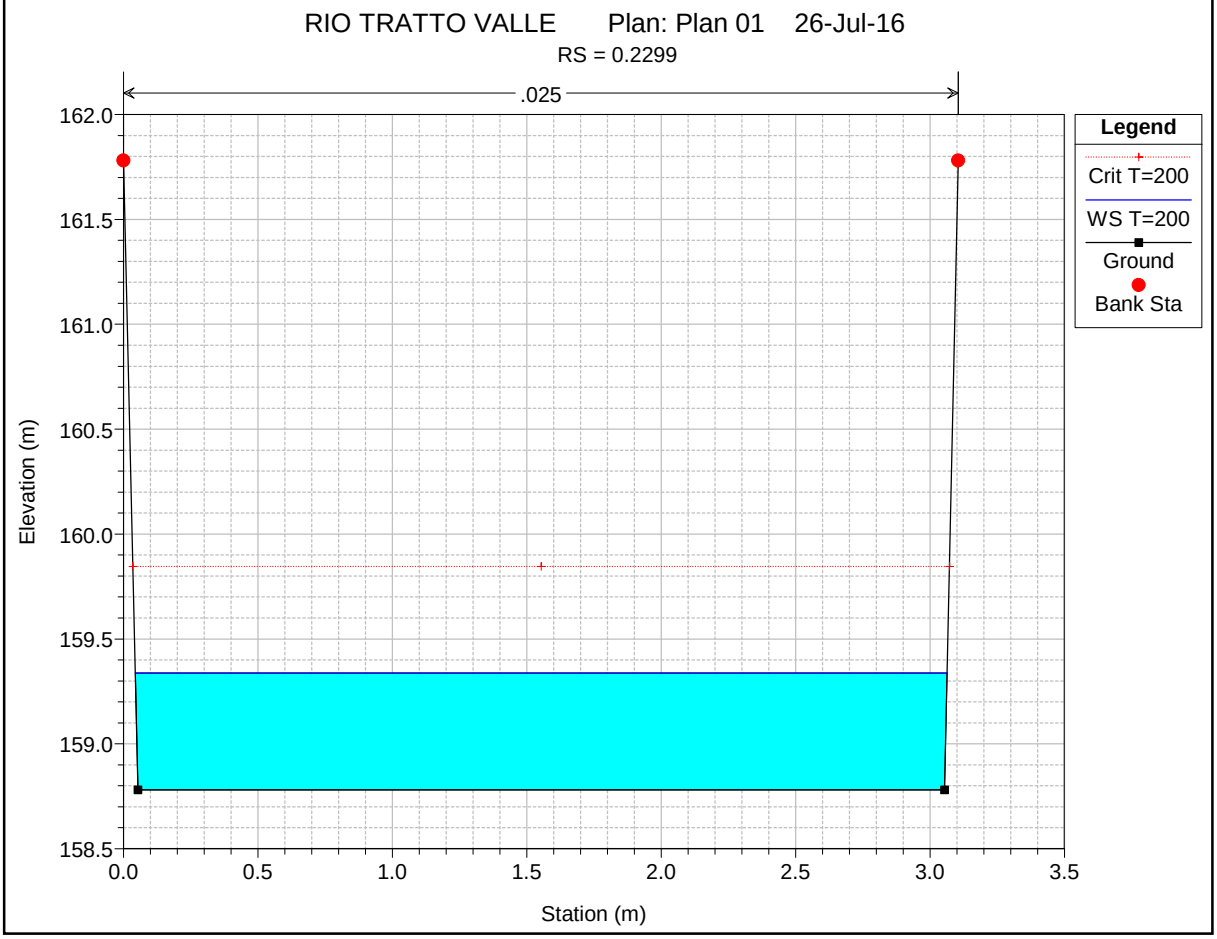

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2523
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
164.5
164.0
163.5
163.0
162.5
162.0
161.5
161.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

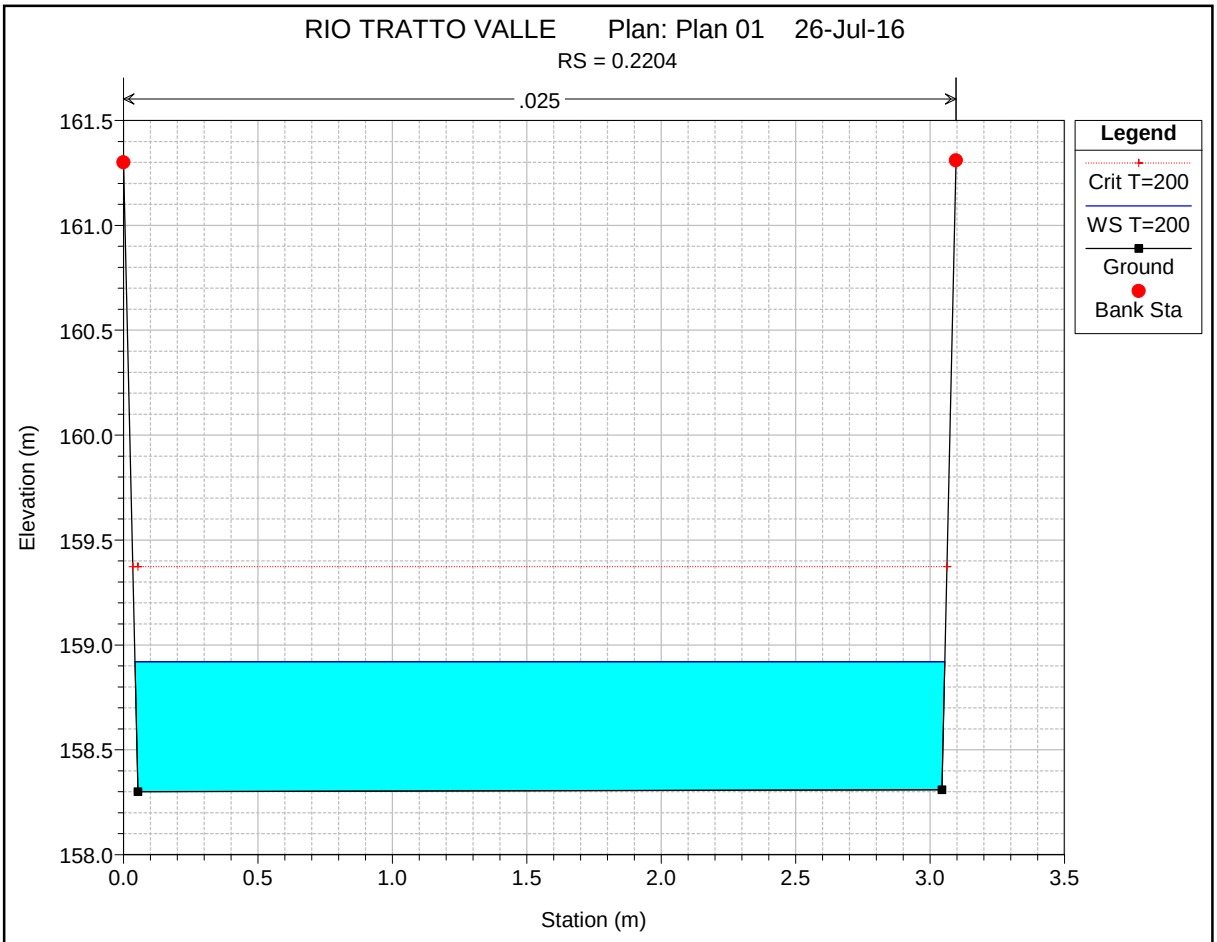

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2467
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
164.5
164.0
163.5
163.0
162.5
162.0
161.5
161.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

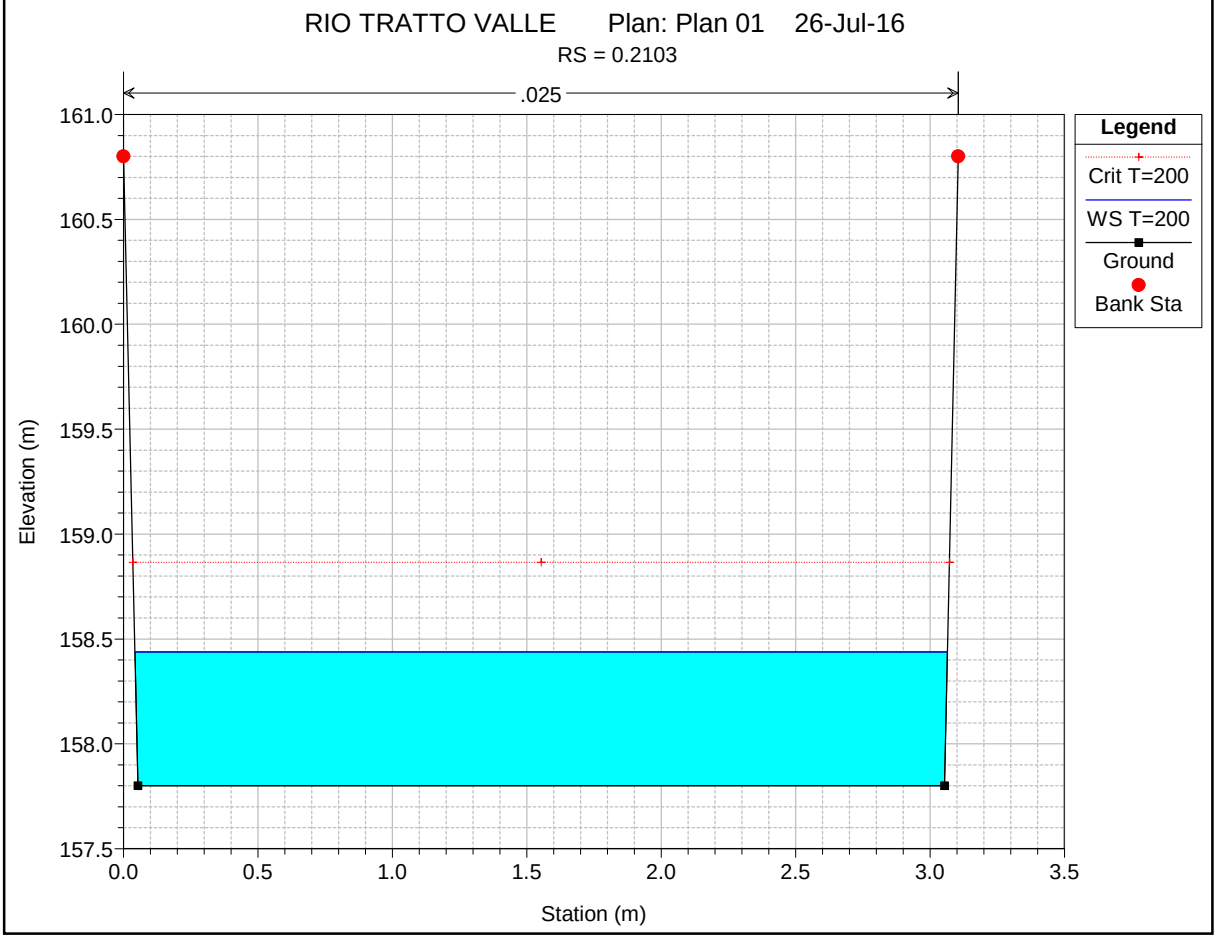

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2424
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
164.0
163.5
163.0
162.5
162.0
161.5
161.0
160.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

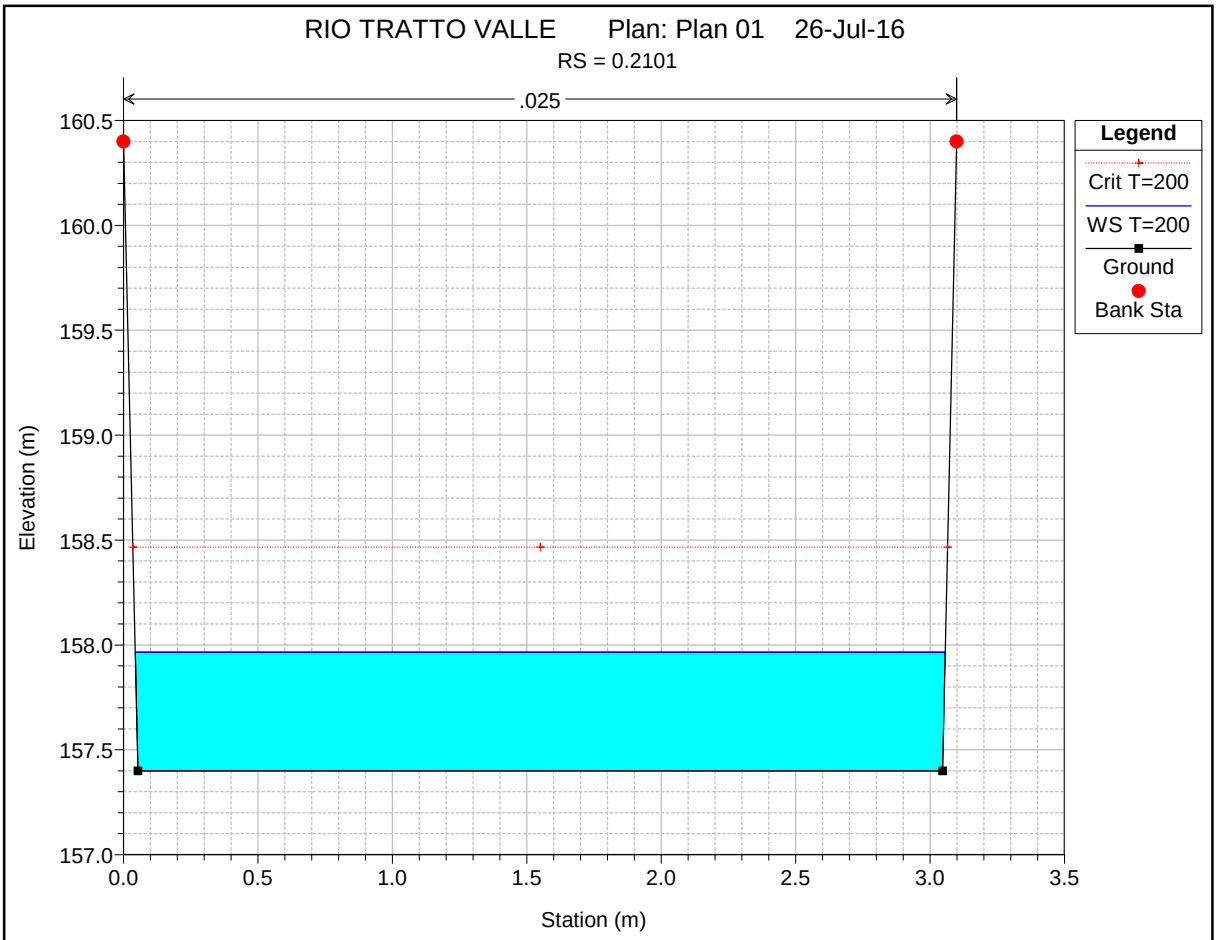

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2422
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
162.5
162.0
161.5
161.0
160.5
160.0
159.5
159.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

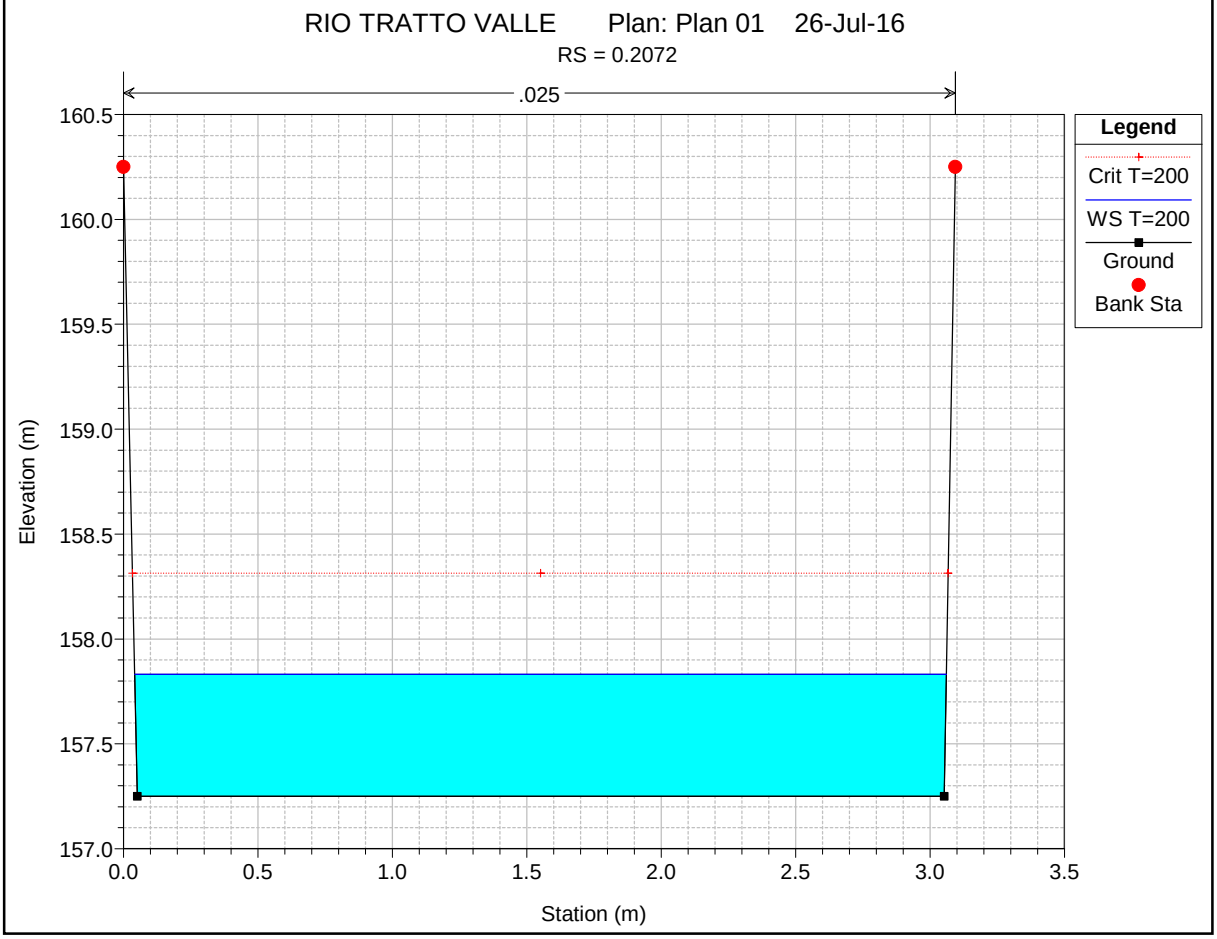

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2365
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
162.5
162.0
161.5
161.0
160.5
160.0
159.5
159.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

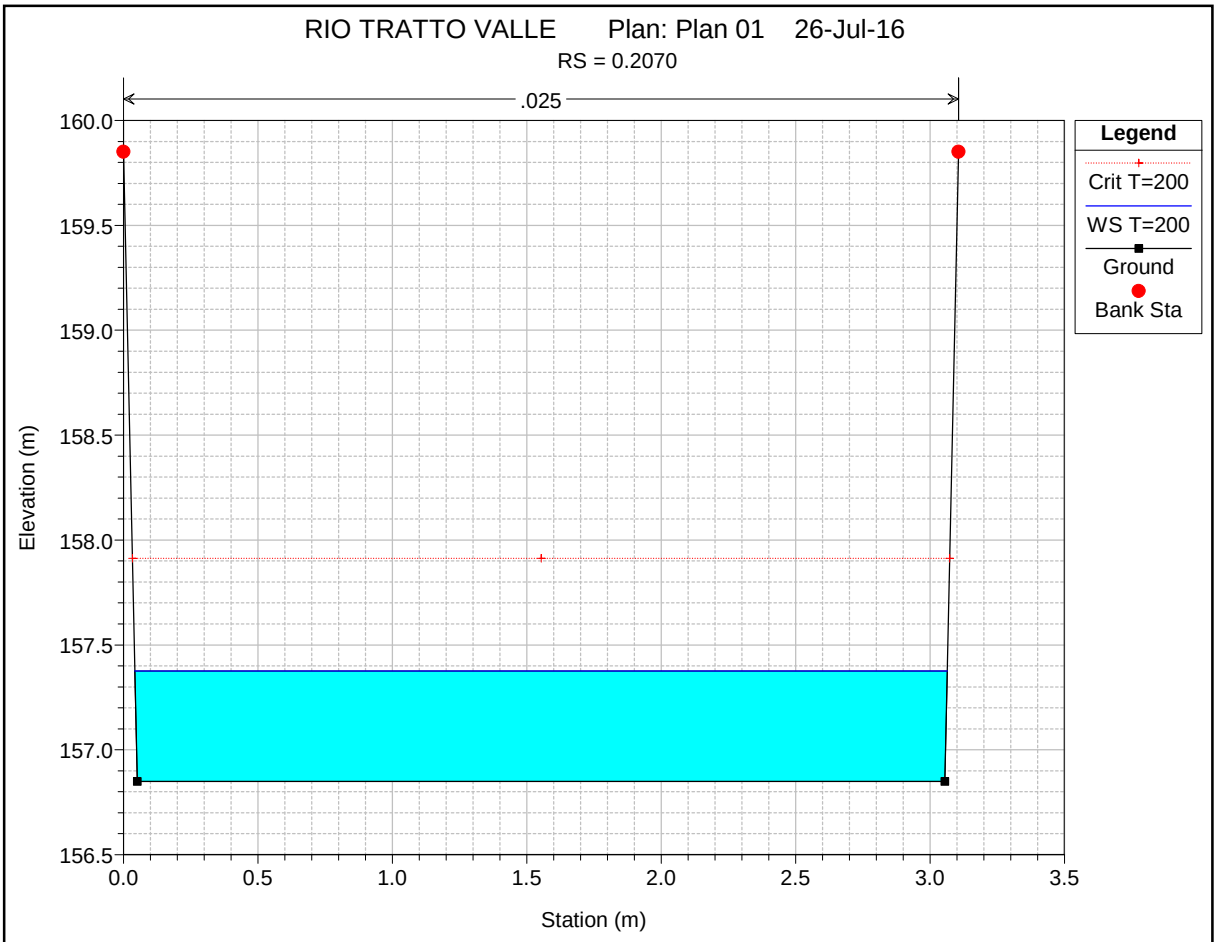

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2299
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
162.0
161.5
161.0
160.5
160.0
159.5
159.0
158.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

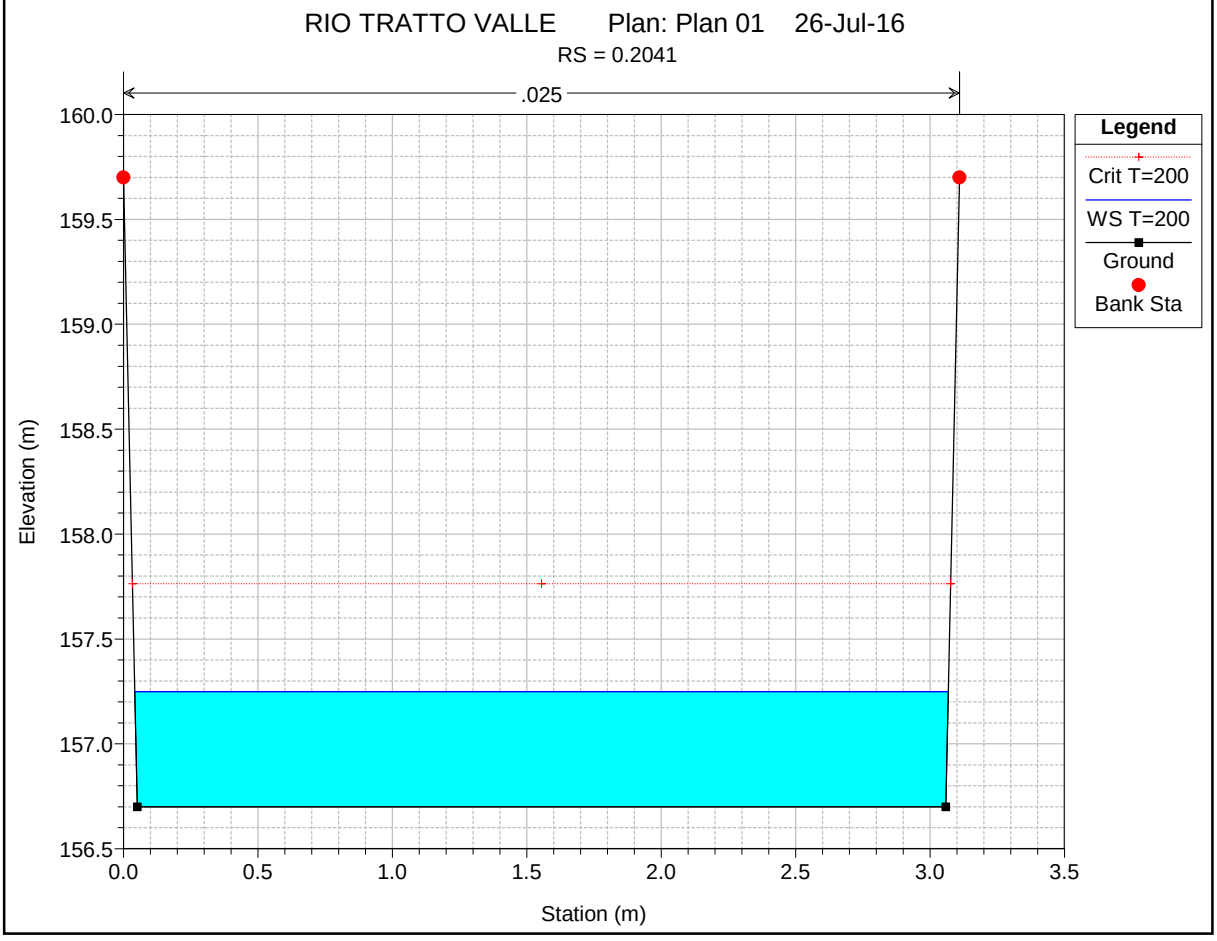

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2204
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
161.5
161.0
160.5
160.0
159.5
159.0
158.5
158.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

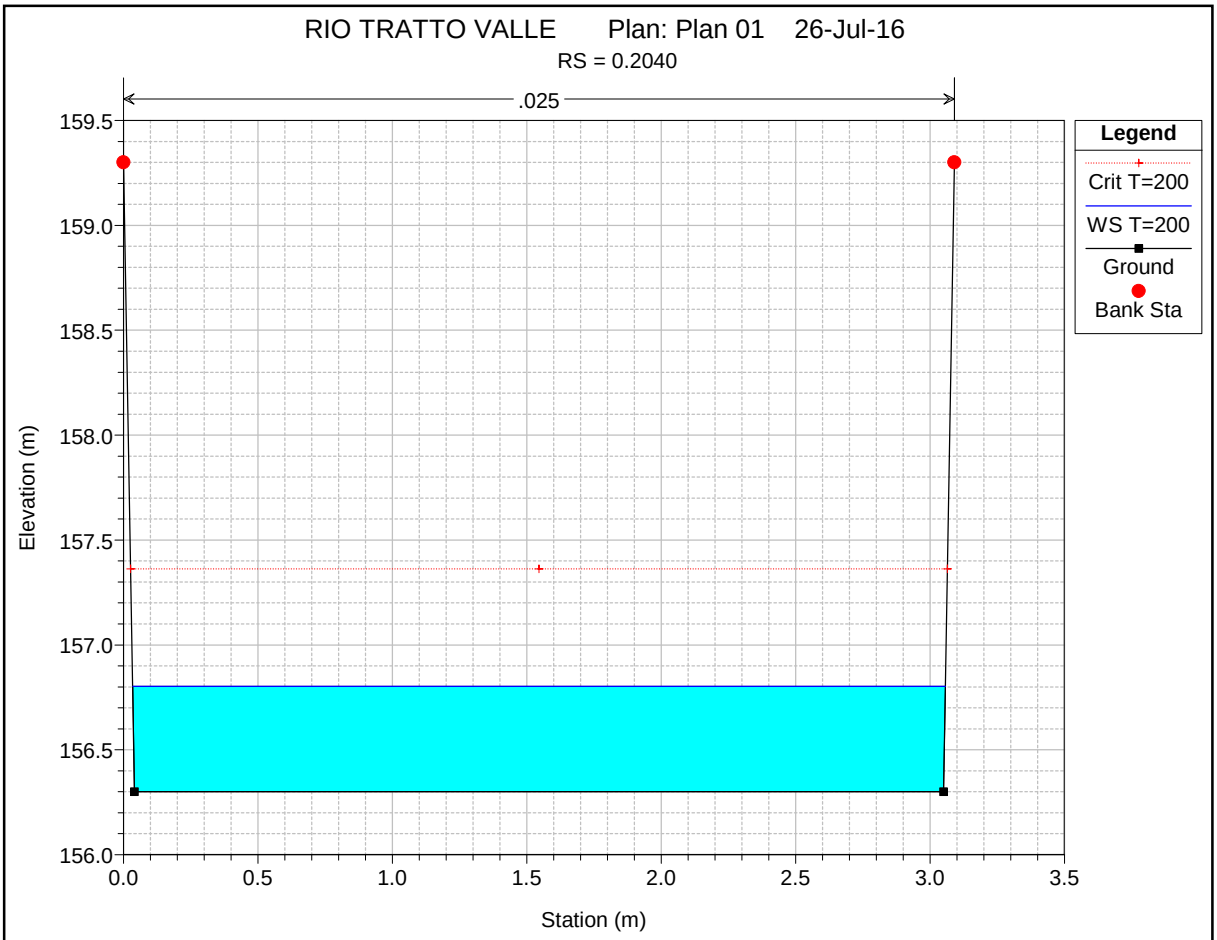

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2103
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
161.0
160.5
160.0
159.5
159.0
158.5
158.0
157.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

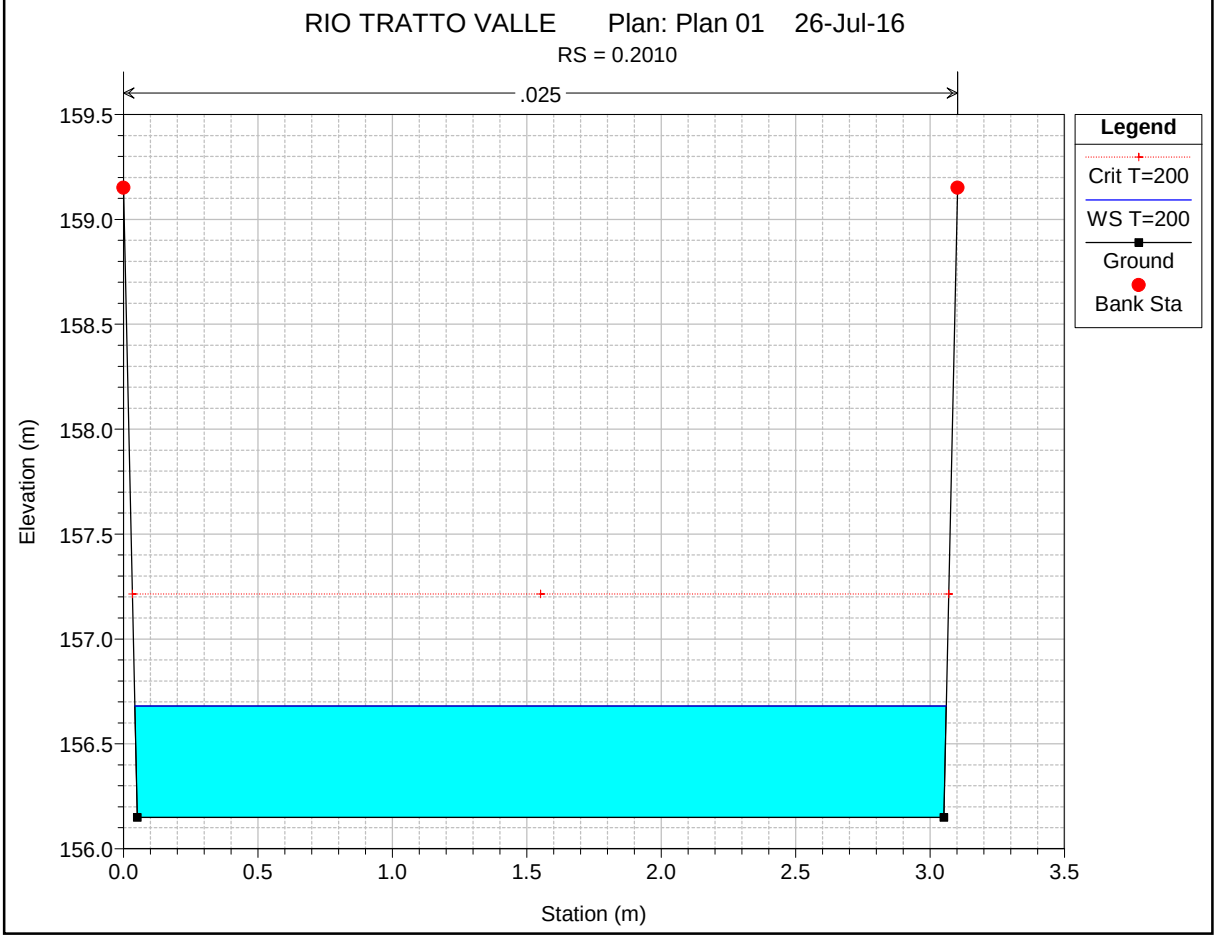

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2101
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
160.5
160.0
159.5
159.0
158.5
158.0
157.5
157.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

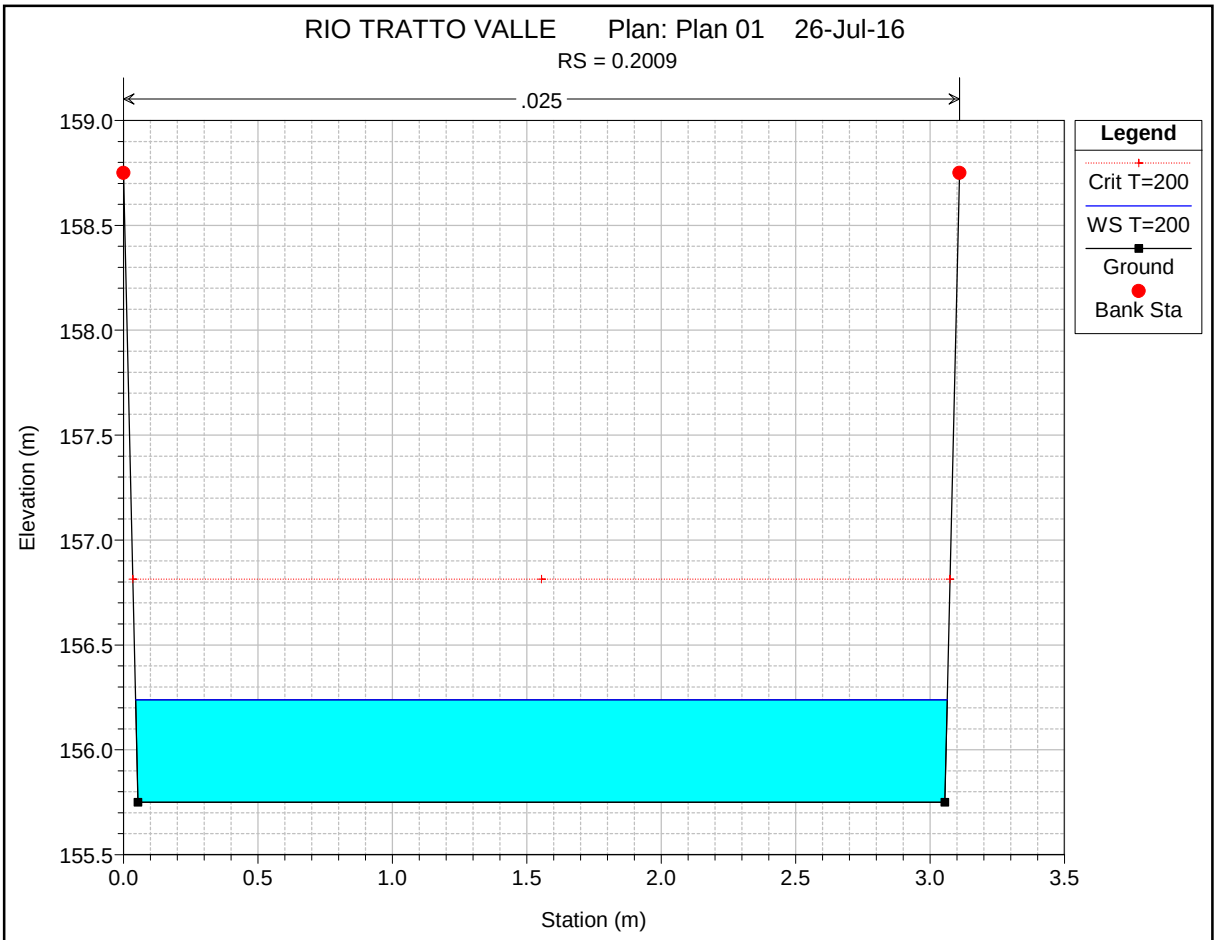

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2072
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
160.5
160.0
159.5
159.0
158.5
158.0
157.5
157.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

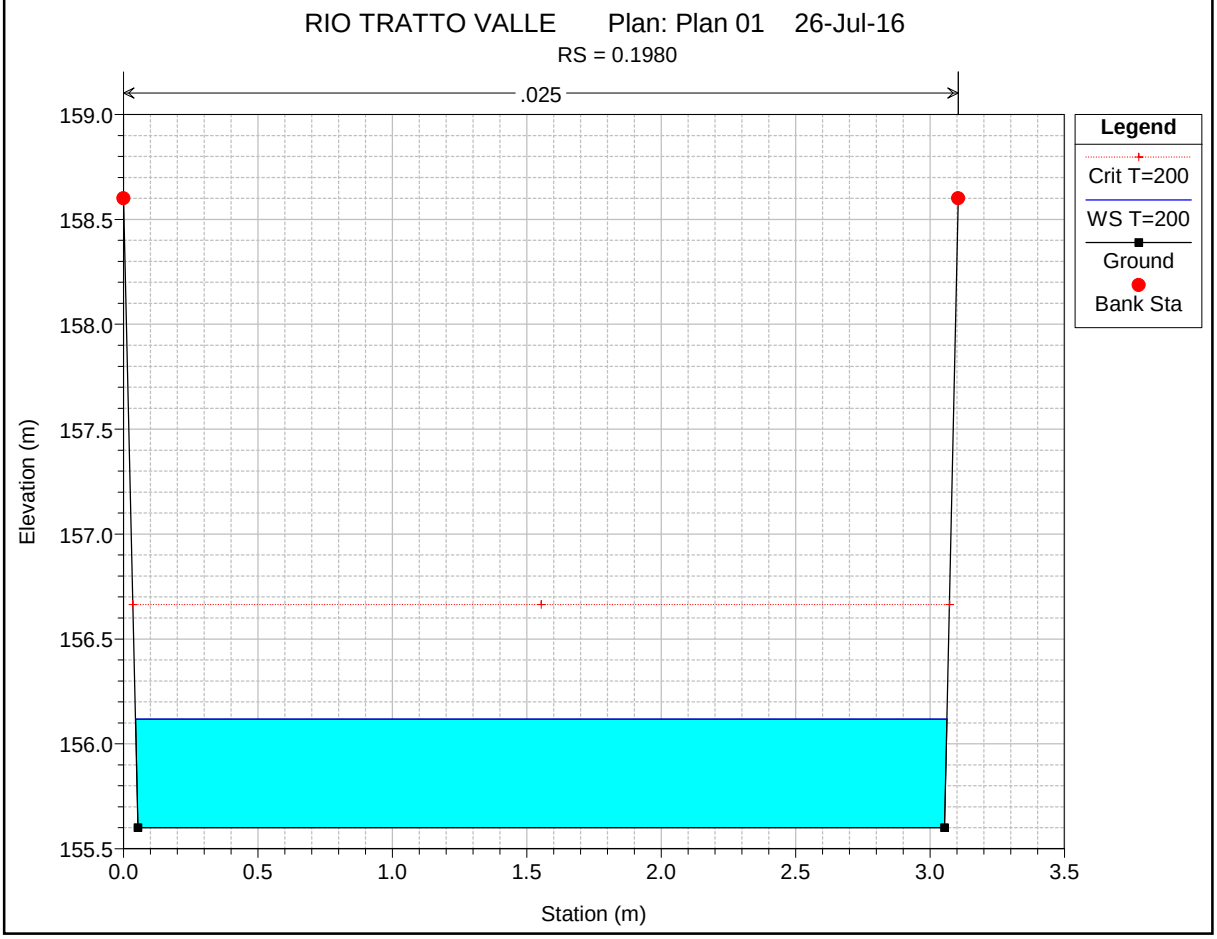

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2070
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
160.0
159.5
159.0
158.5
158.0
157.5
157.0
156.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

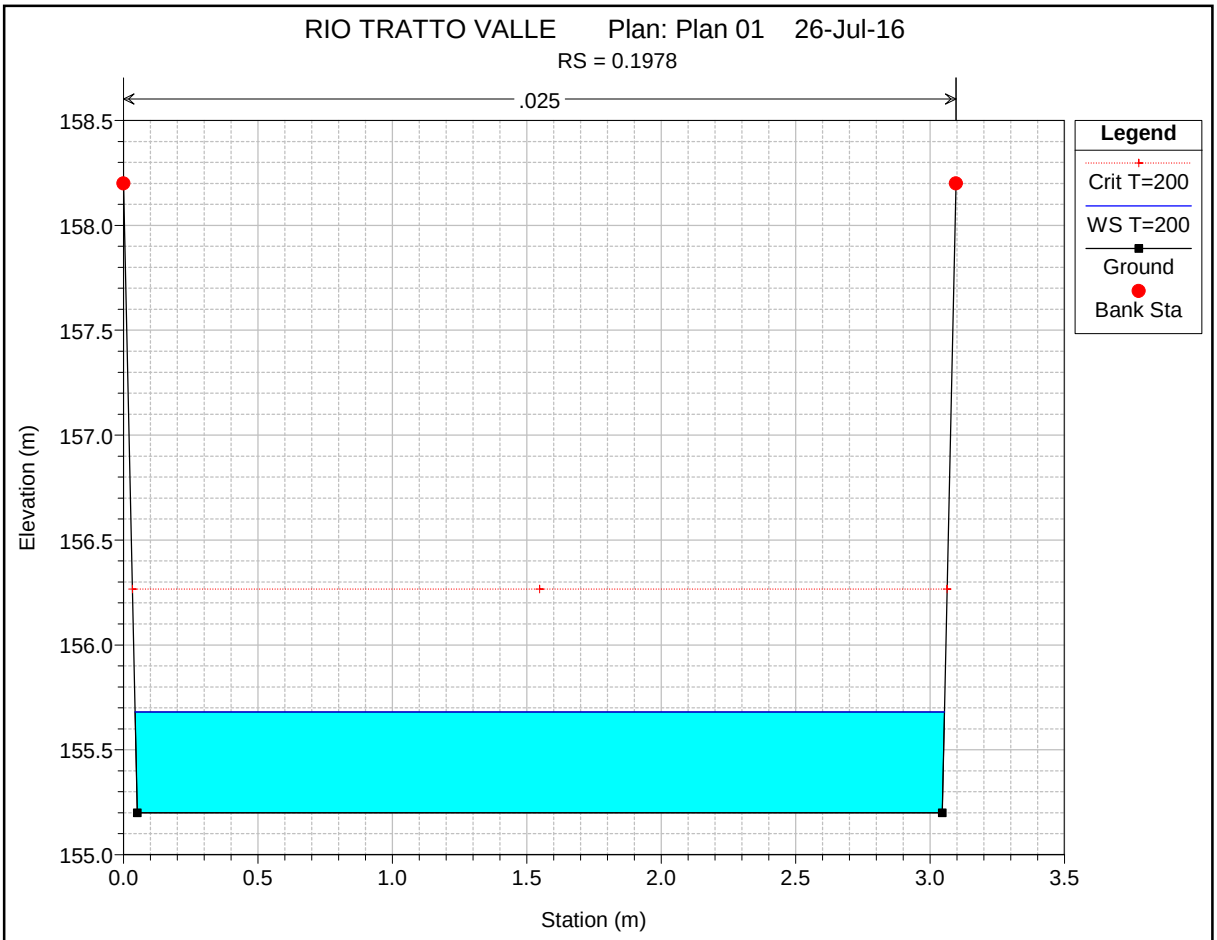

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2041
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
160.0
159.5
159.0
158.5
158.0
157.5
157.0
156.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

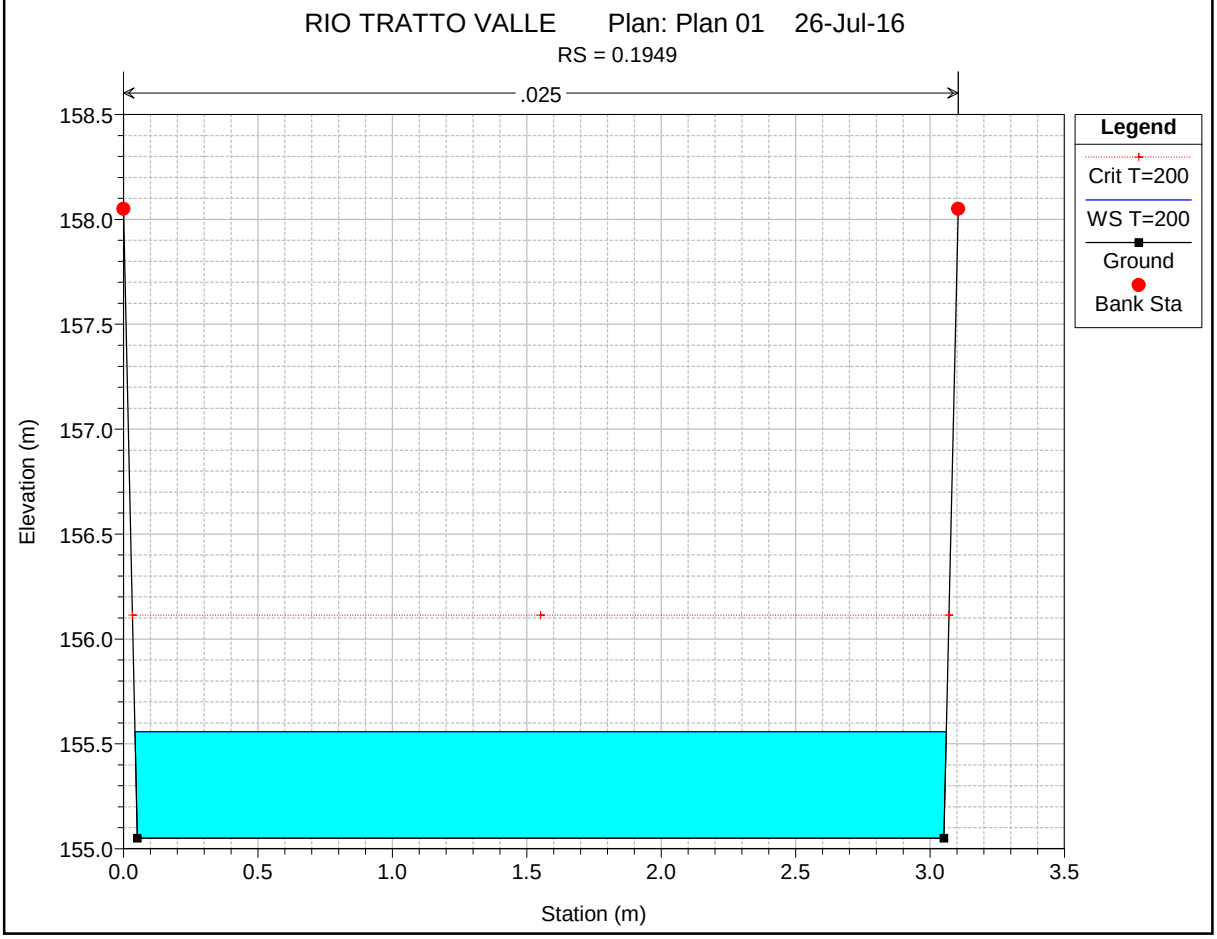

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2040
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
159.5
159.0
158.5
158.0
157.5
157.0
156.5
156.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

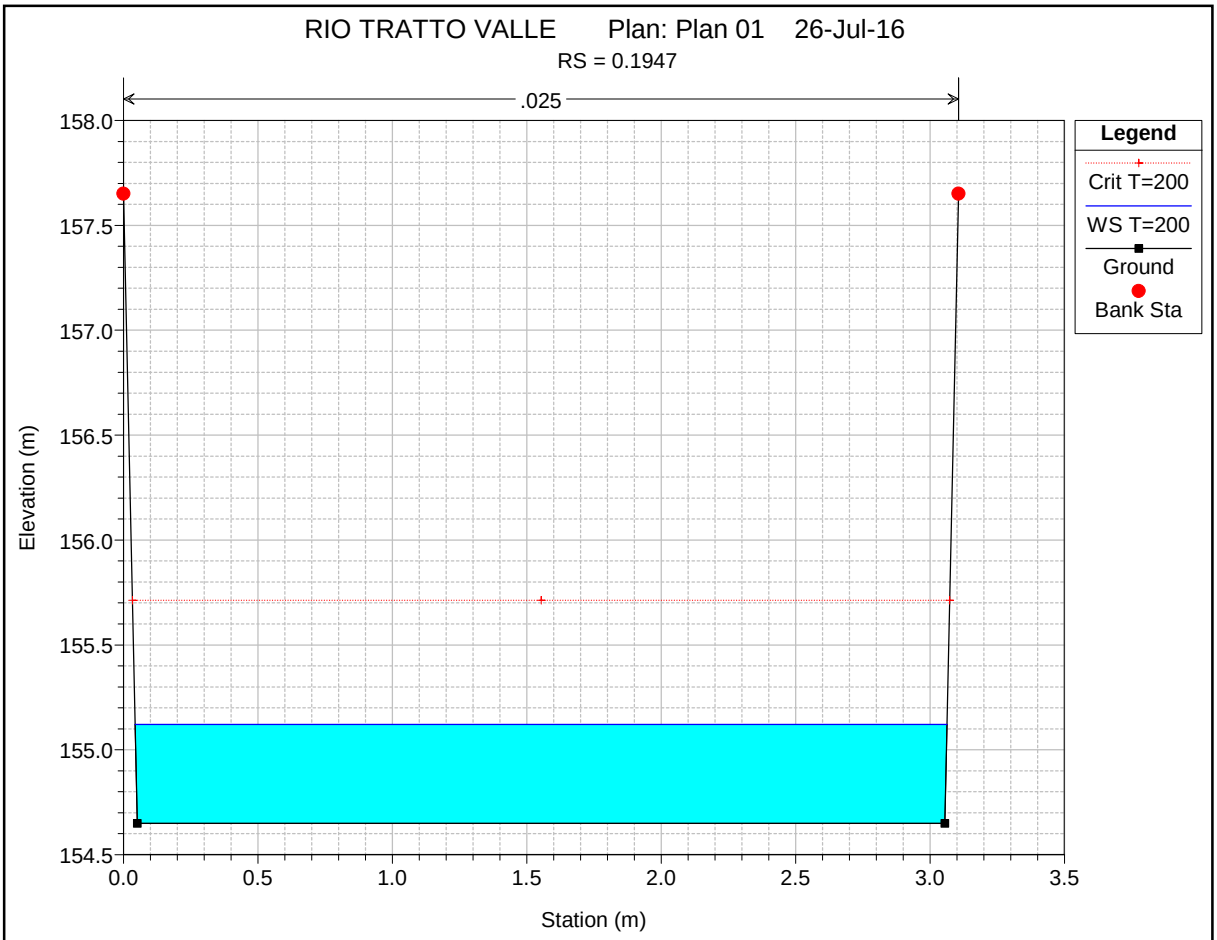

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2010
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
159.5
159.0
158.5
158.0
157.5
157.0
156.5
156.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

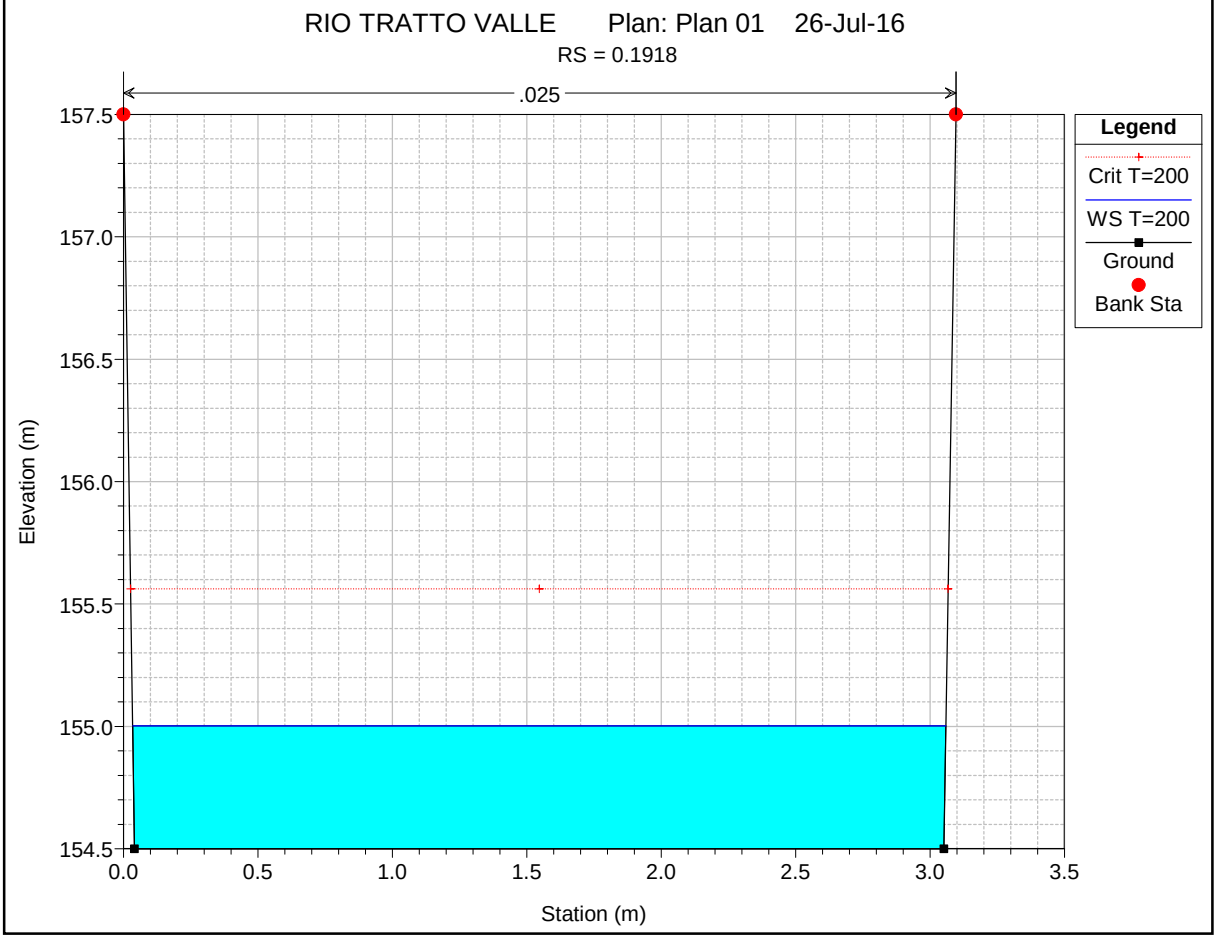

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.2009
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
159.0
158.5
158.0
157.5
157.0
156.5
156.0
155.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

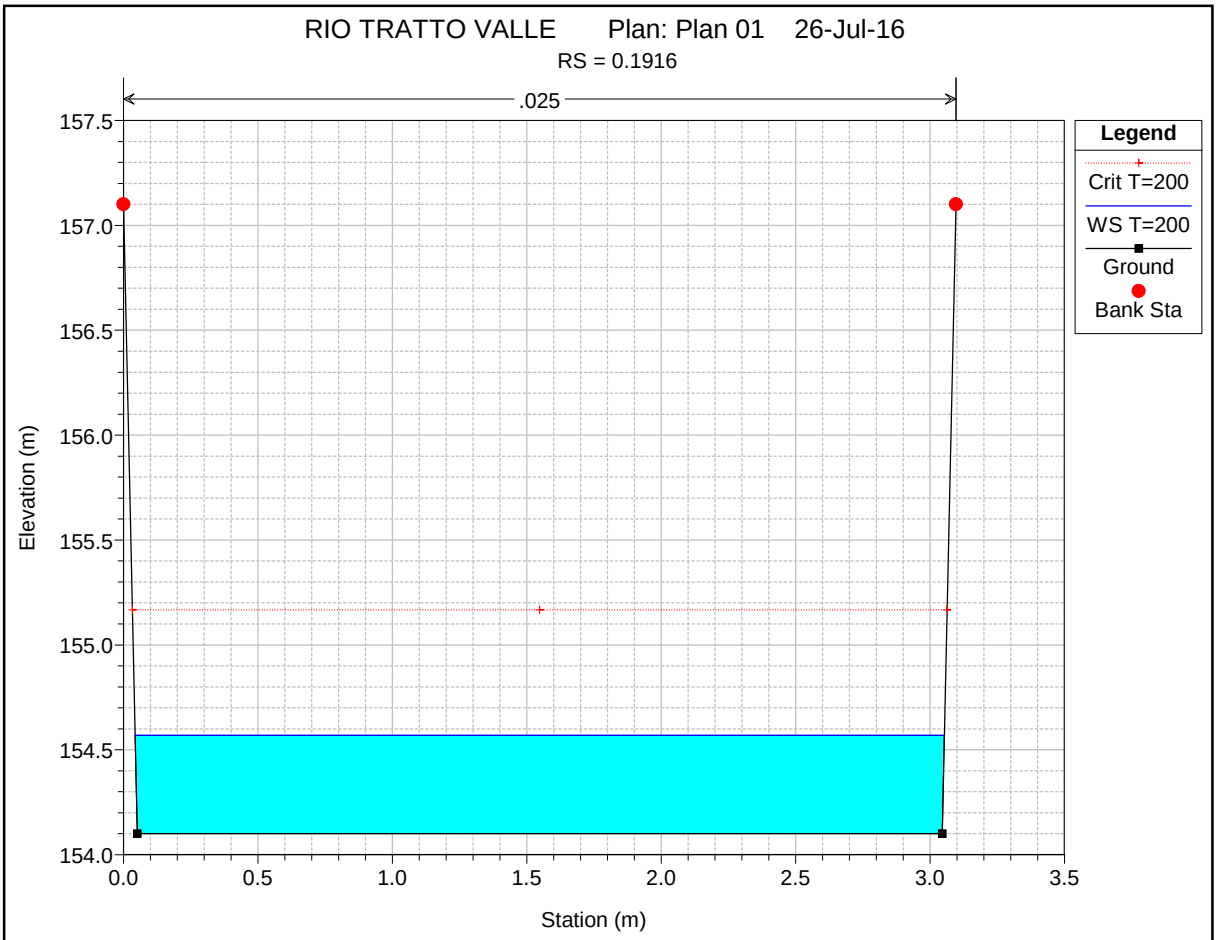

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1980
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
159.0
158.5
158.0
157.5
157.0
156.5
156.0
155.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

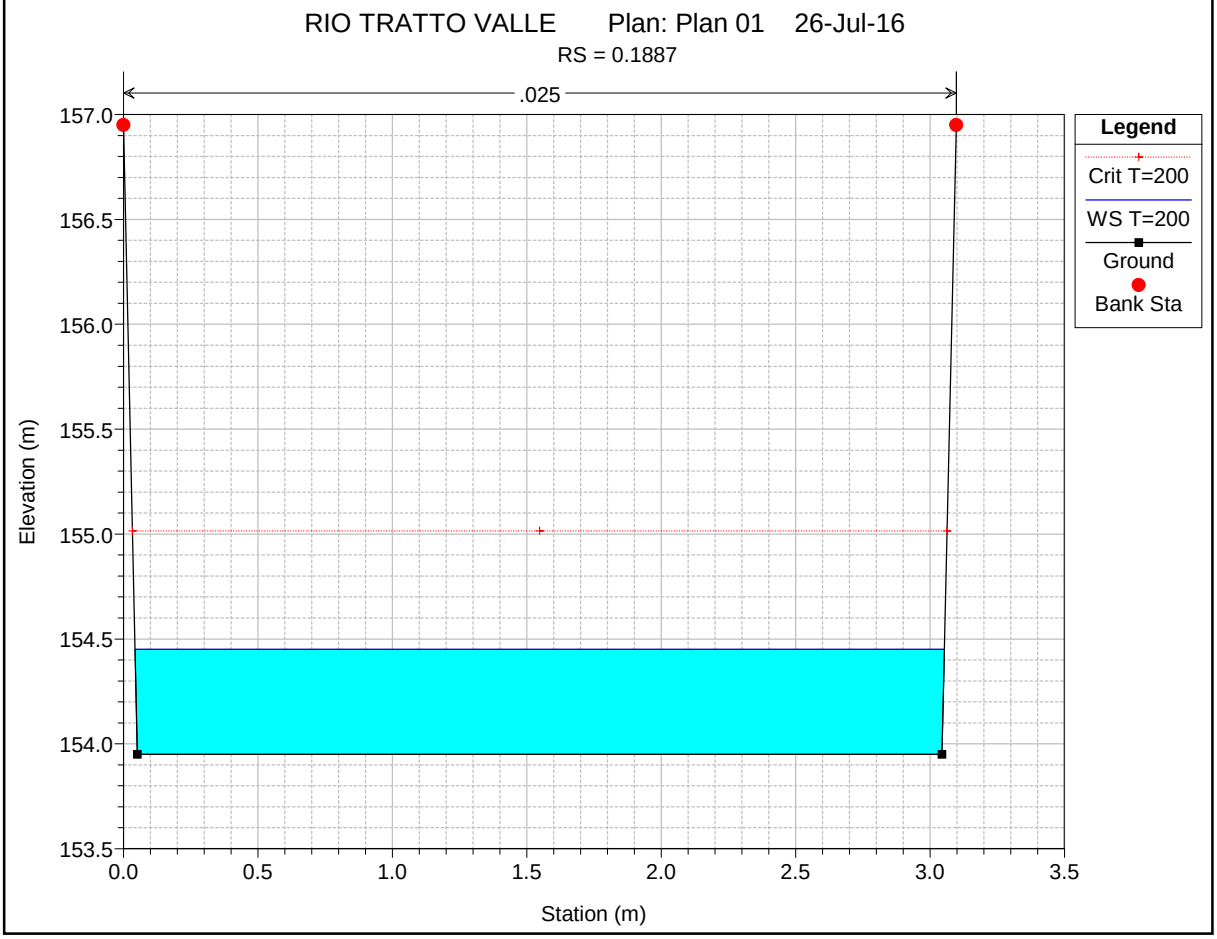

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1978
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
158.5
158.0
157.5
157.0
156.5
156.0
155.5
155.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

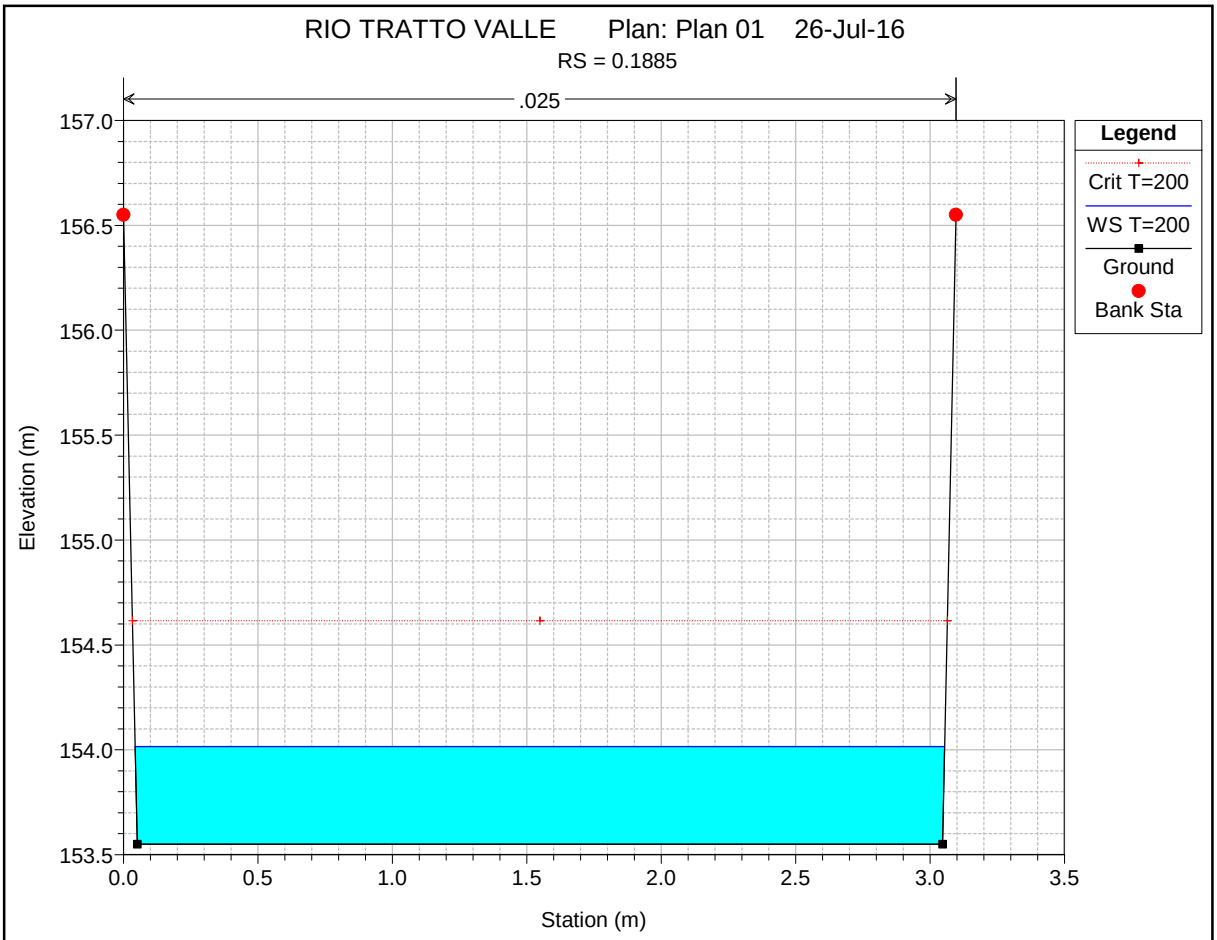

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1949
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
158.5
158.0
157.5
157.0
156.5
156.0
155.5
155.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

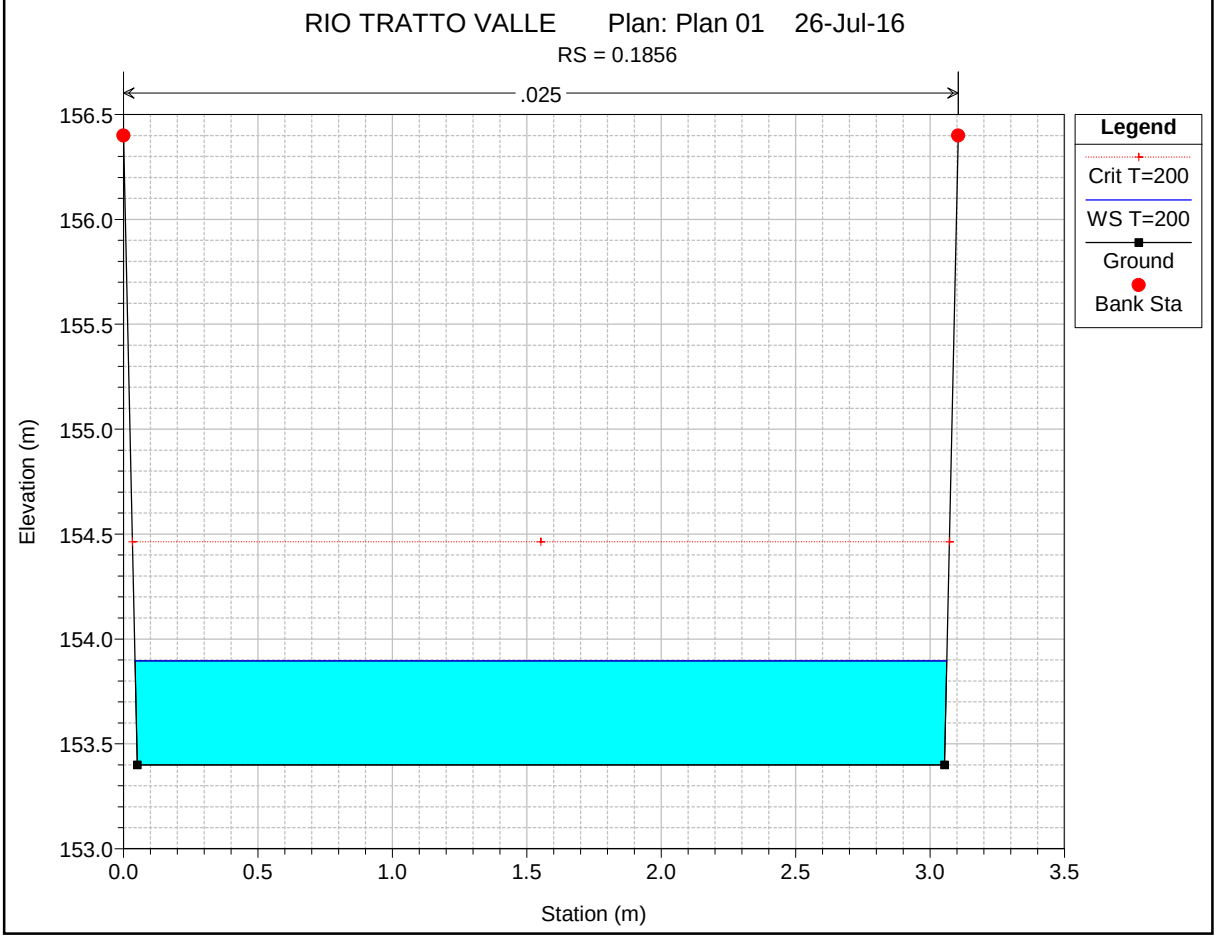

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1947
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
158.0
157.5
157.0
156.5
156.0
155.5
155.0
154.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

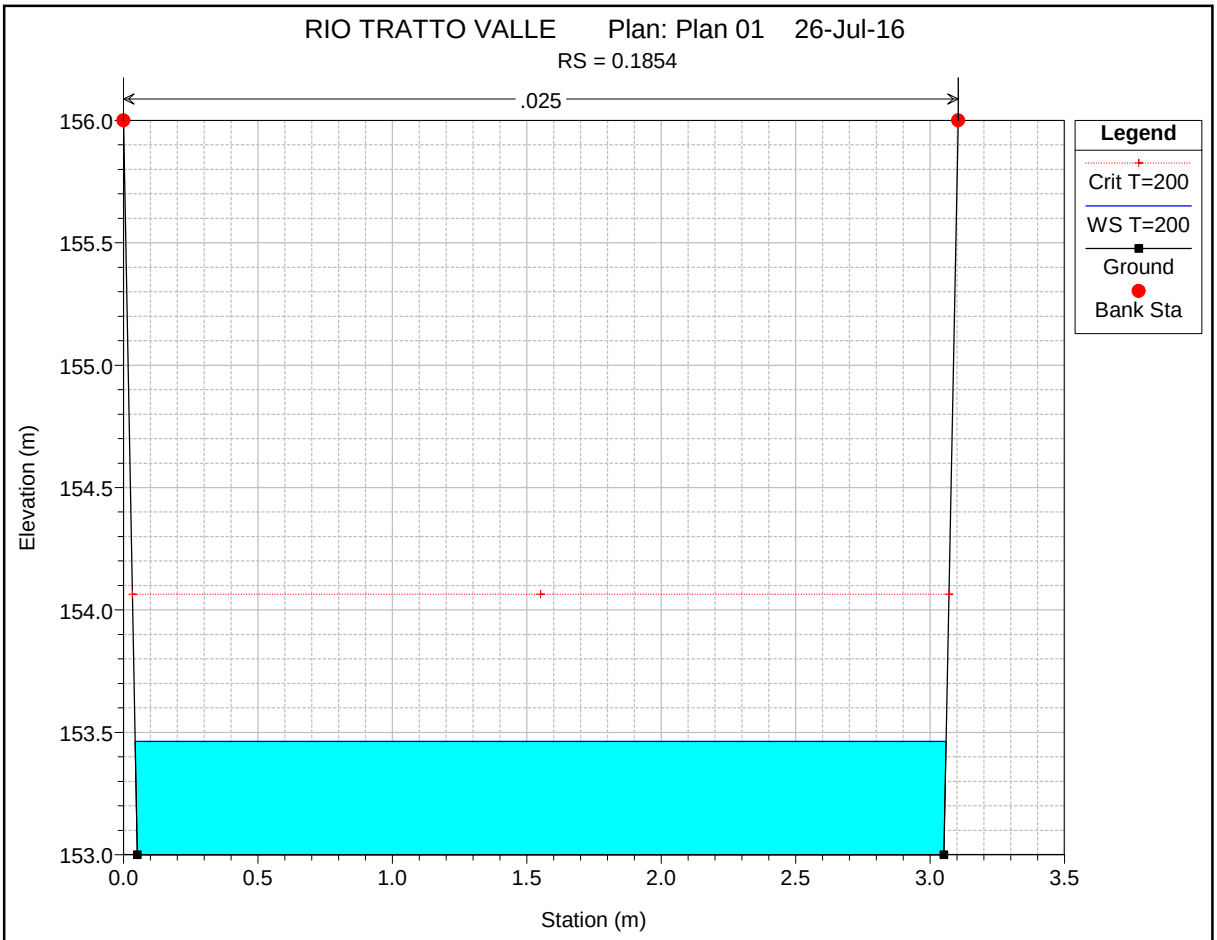

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1918
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
157.5
157.0
156.5
156.0
155.5
155.0
154.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

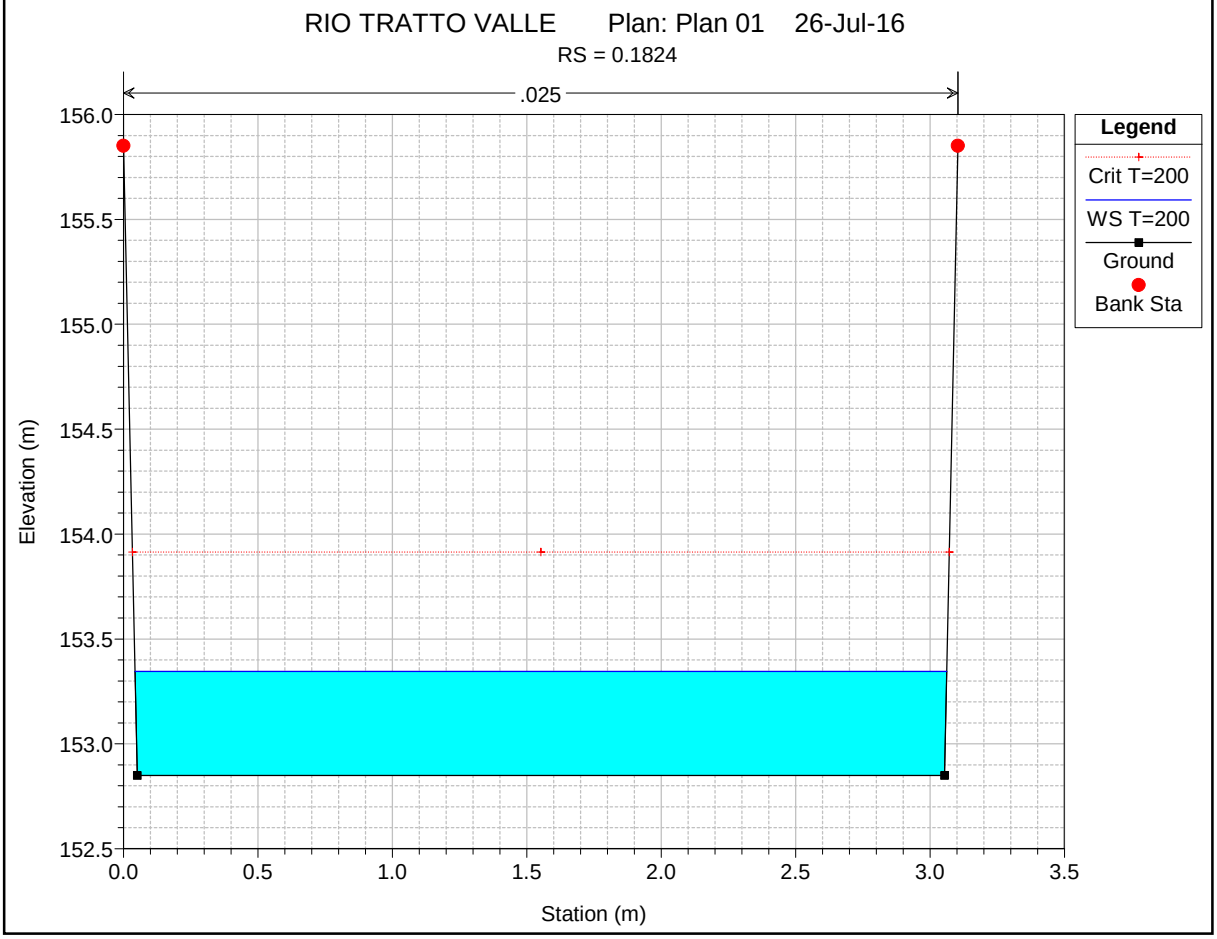

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1916
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
157.5
157.0
156.5
156.0
155.5
155.0
154.5
154.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

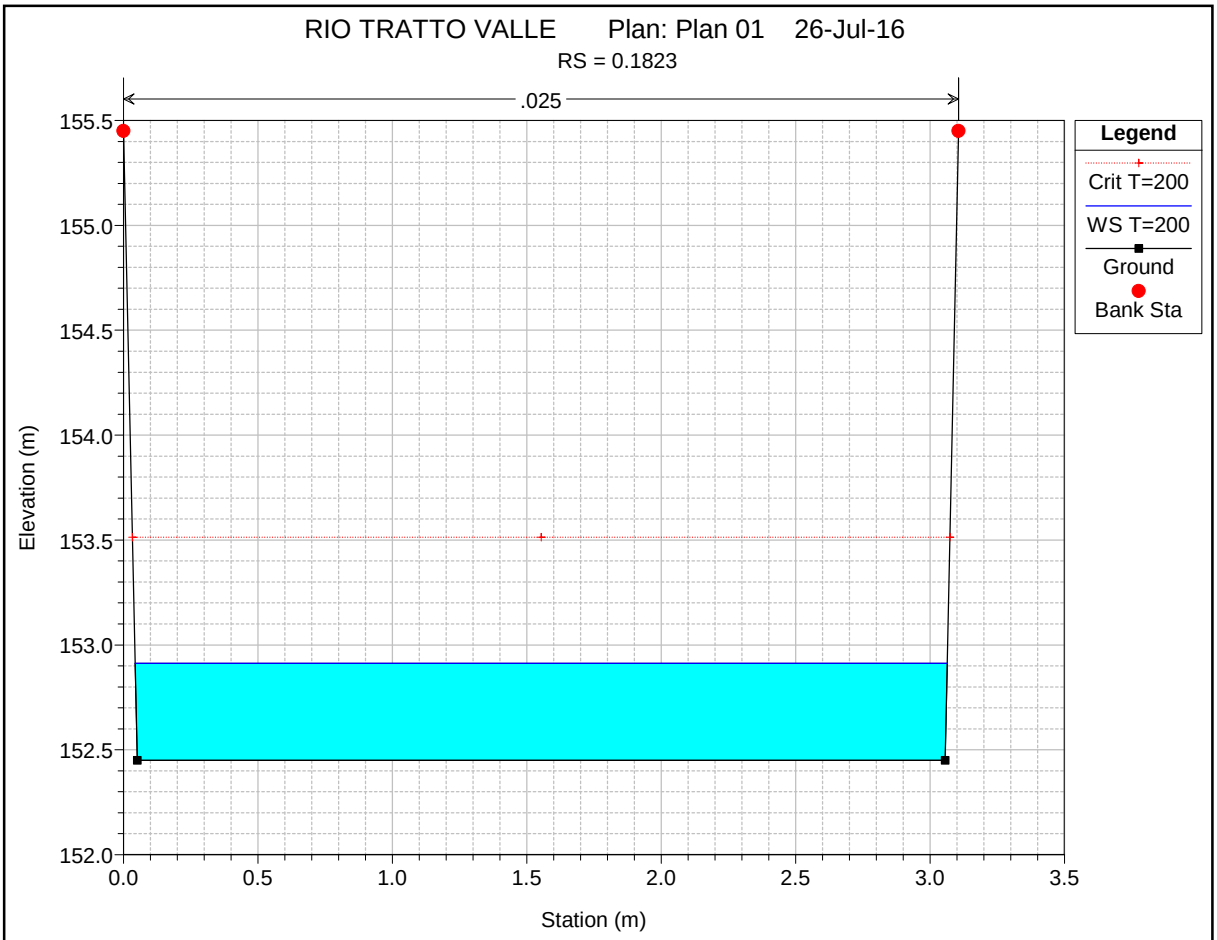

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1887
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
157.0
156.5
156.0
155.5
155.0
154.5
154.0
153.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

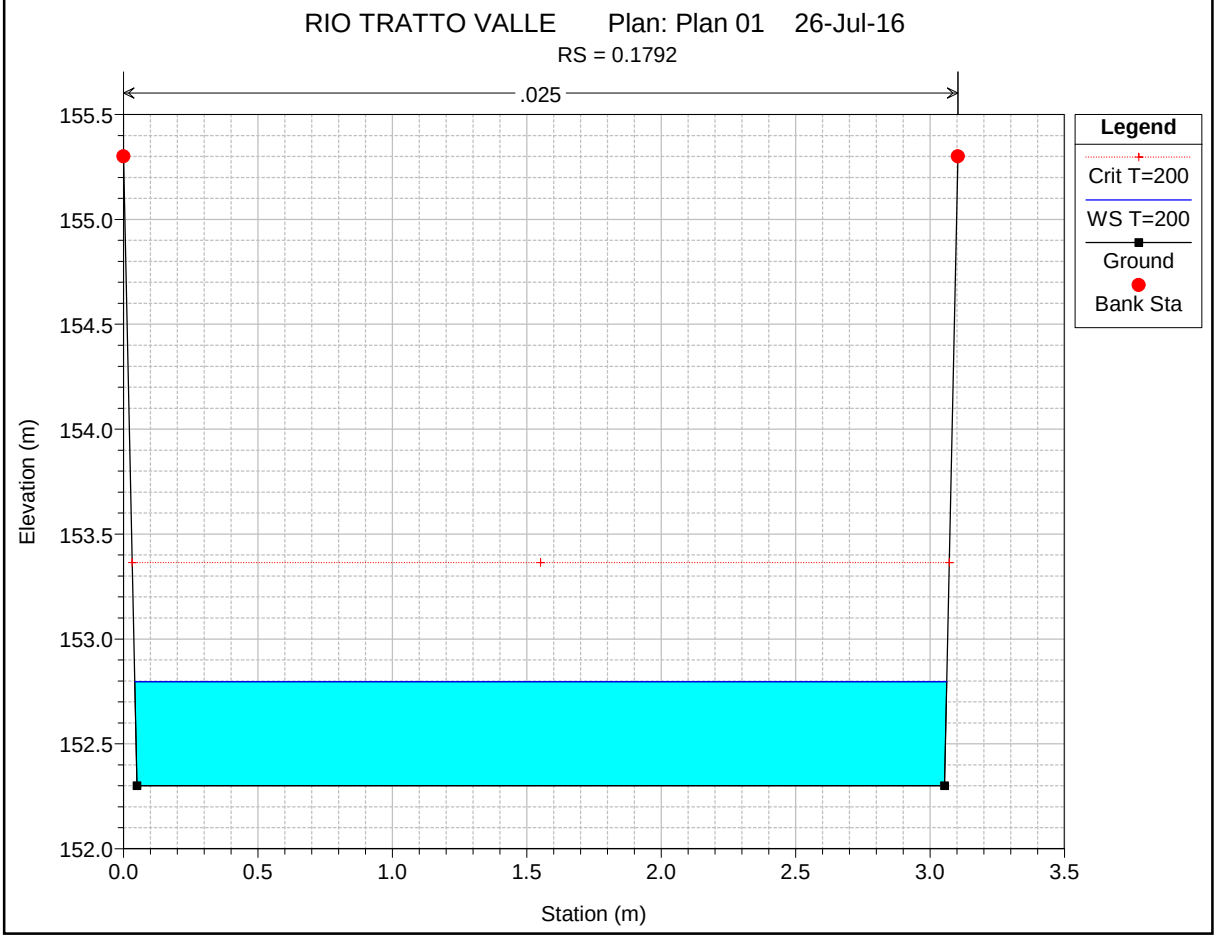

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1885
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
157.0
156.5
156.0
155.5
155.0
154.5
154.0
153.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

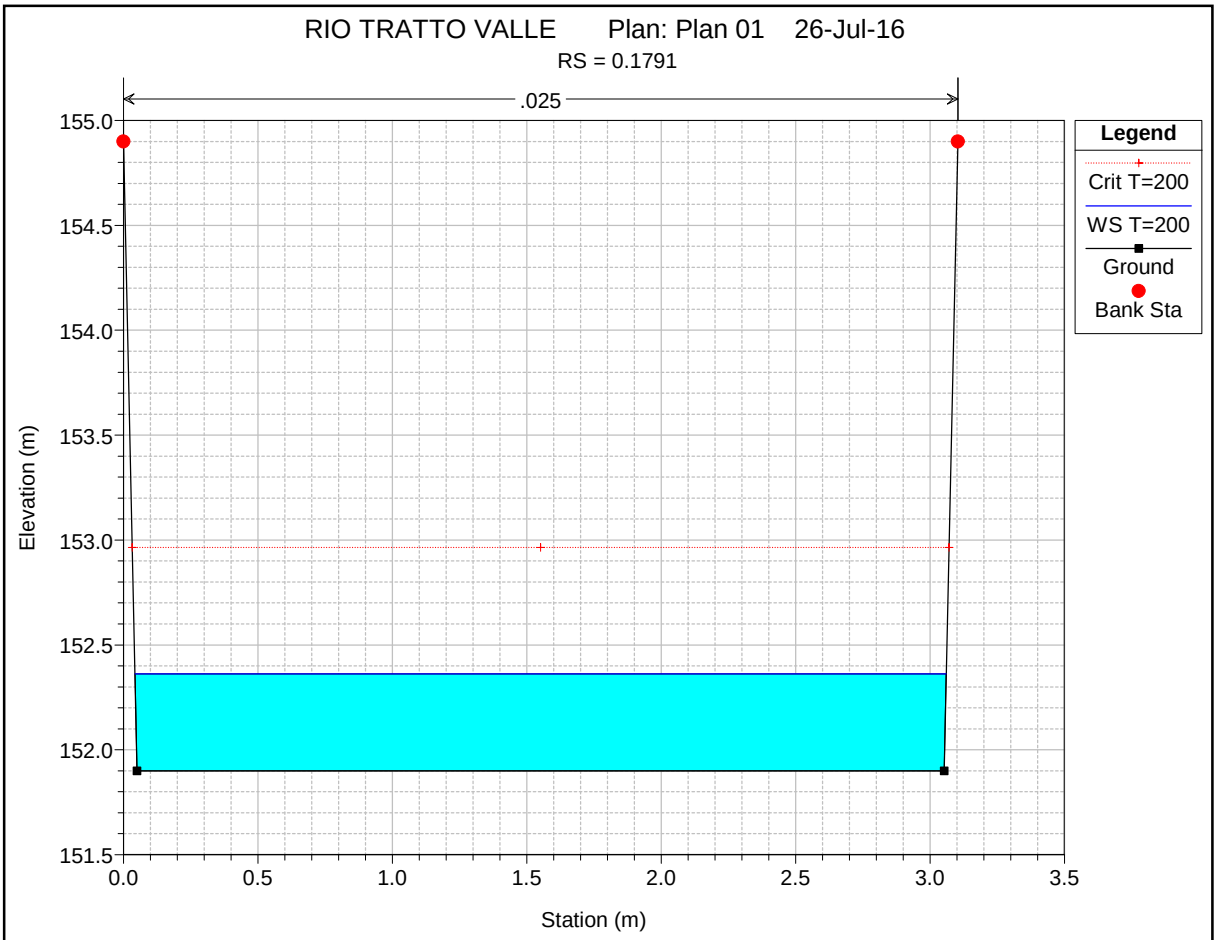

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1856
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
156.5
156.0
155.5
155.0
154.5
154.0
153.5
153.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

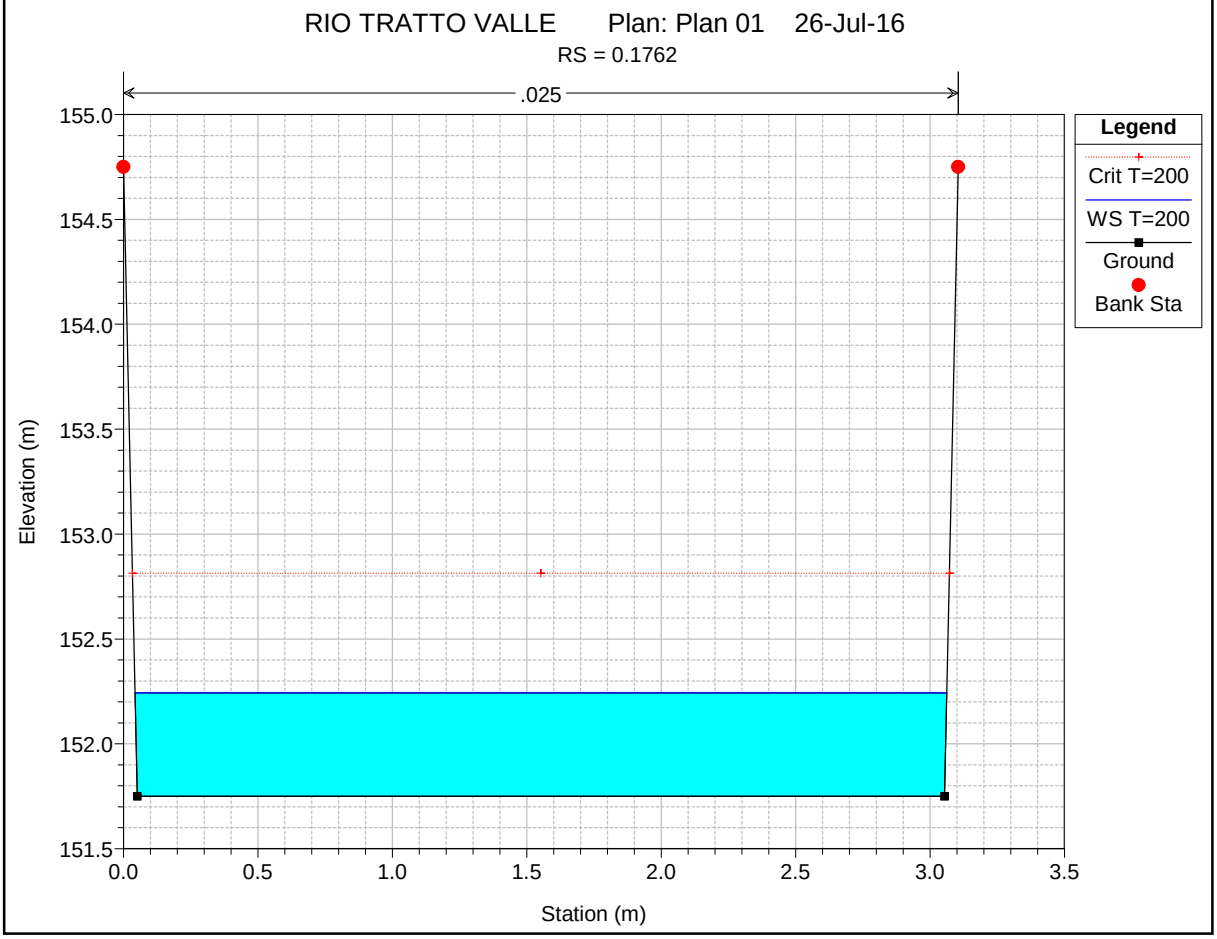

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1854
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
156.0
155.5
155.0
154.5
154.0
153.5
153.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

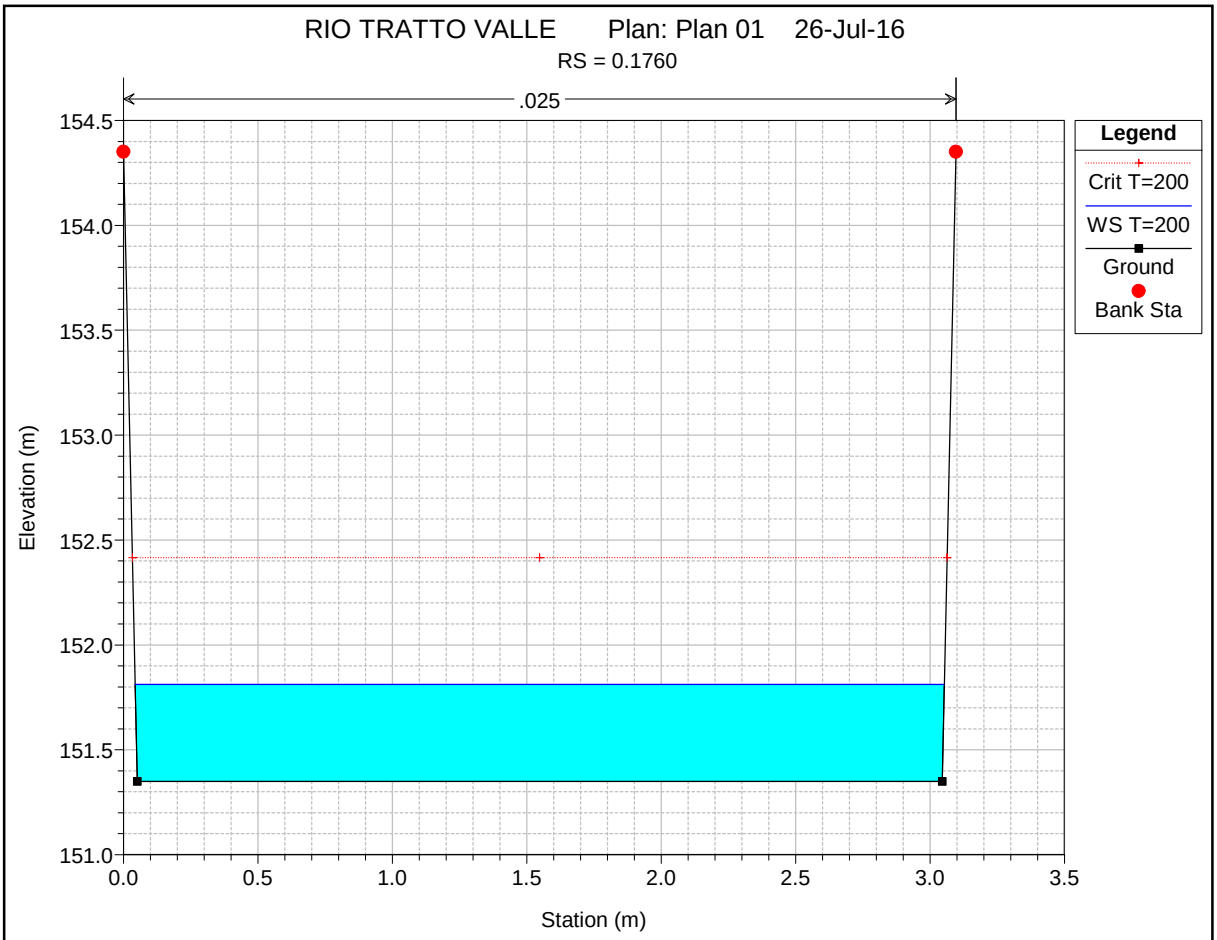

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1824
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
156.0
155.5
155.0
154.5
154.0
153.5
153.0
152.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

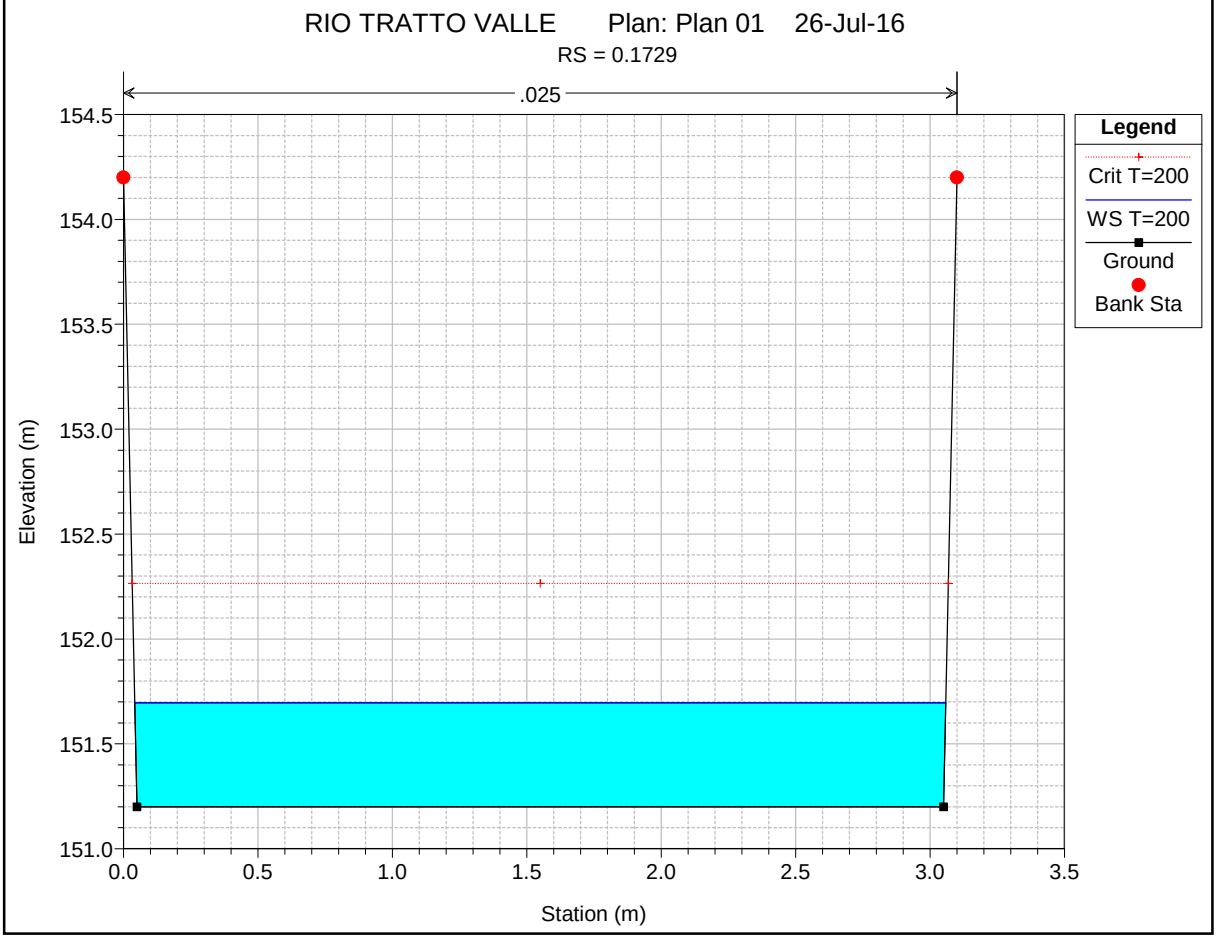

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1823
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
155.5
155.0
154.5
154.0
153.5
153.0
152.5
152.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

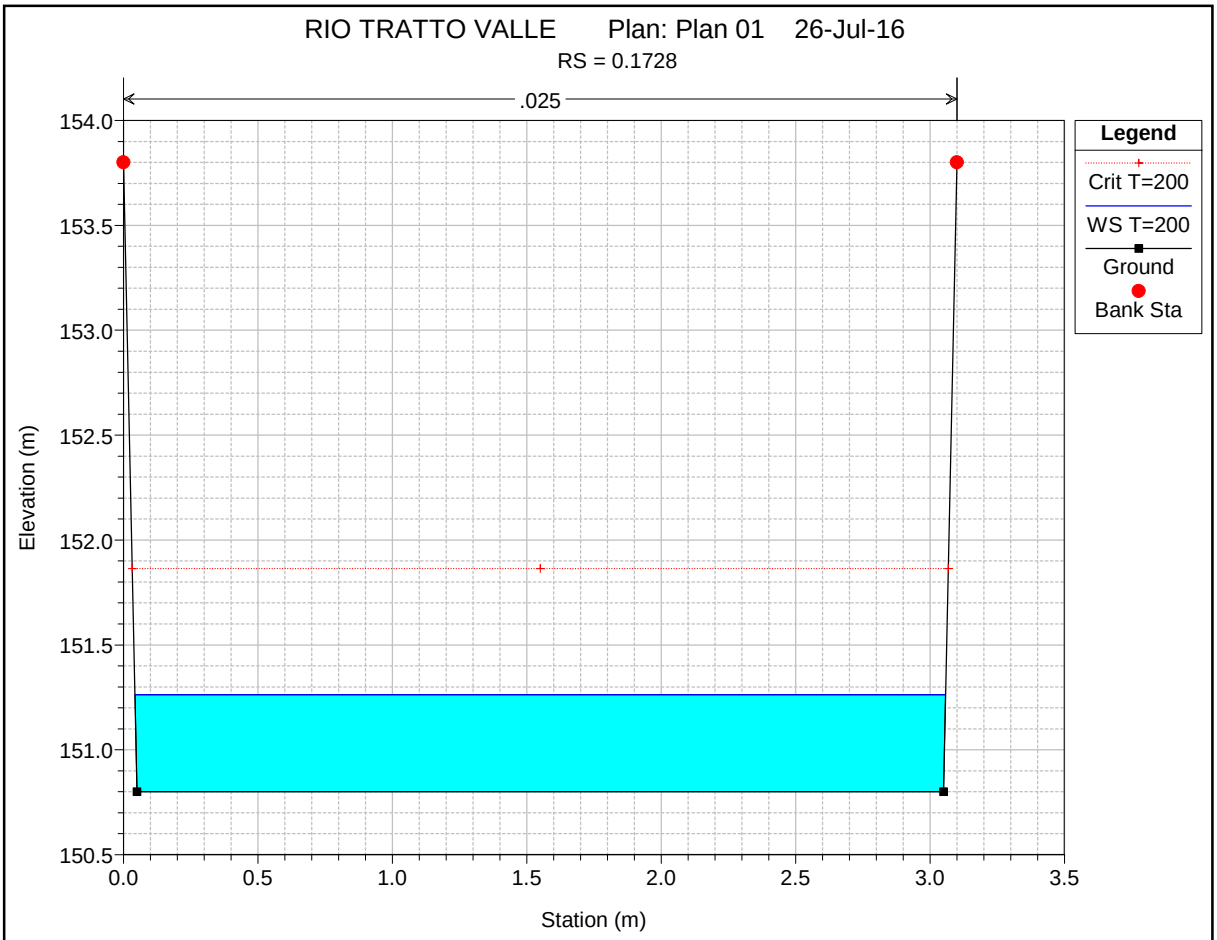

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1792
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
155.5
155.0
154.5
154.0
153.5
153.0
152.5
152.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

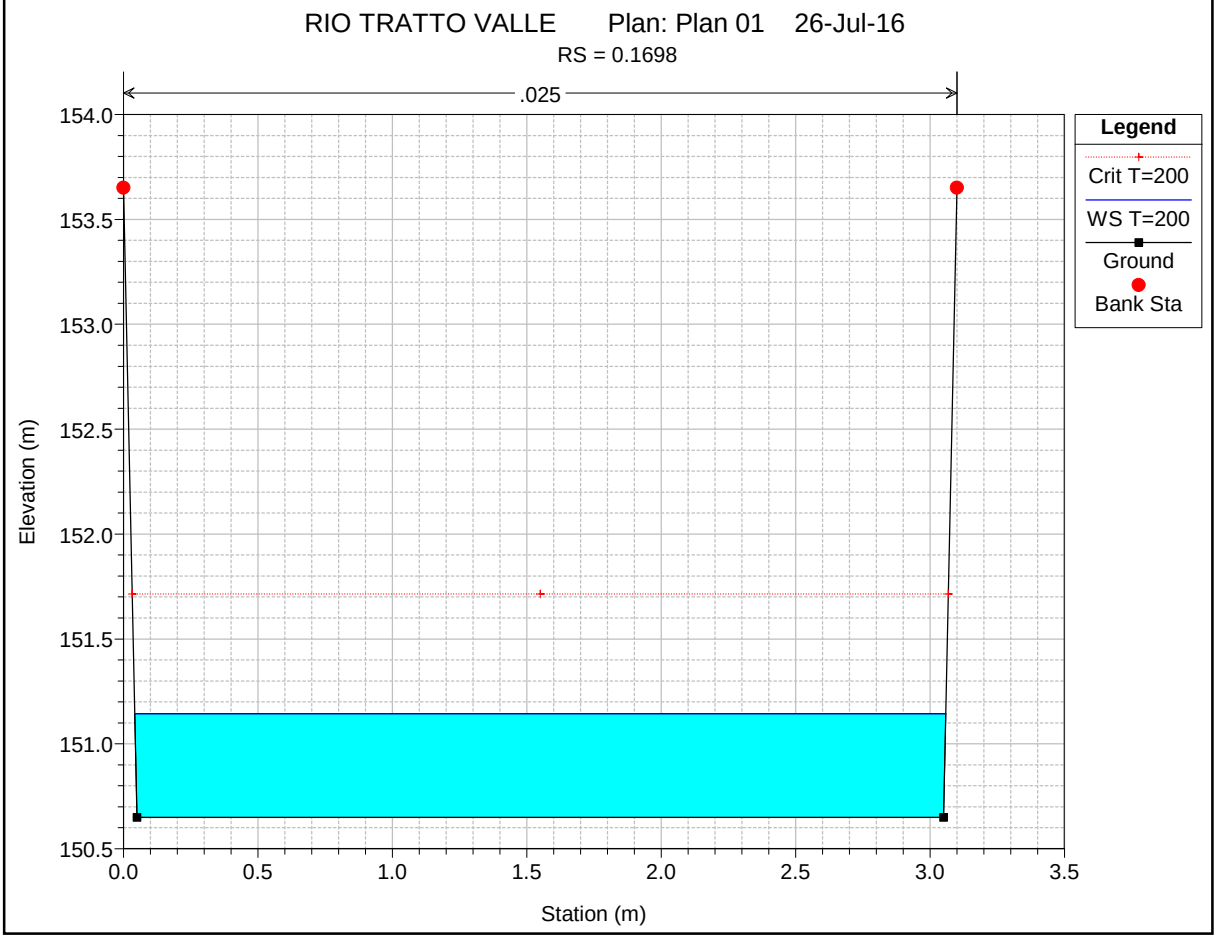

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1791
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
155.0
154.5
154.0
153.5
153.0
152.5
152.0
151.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

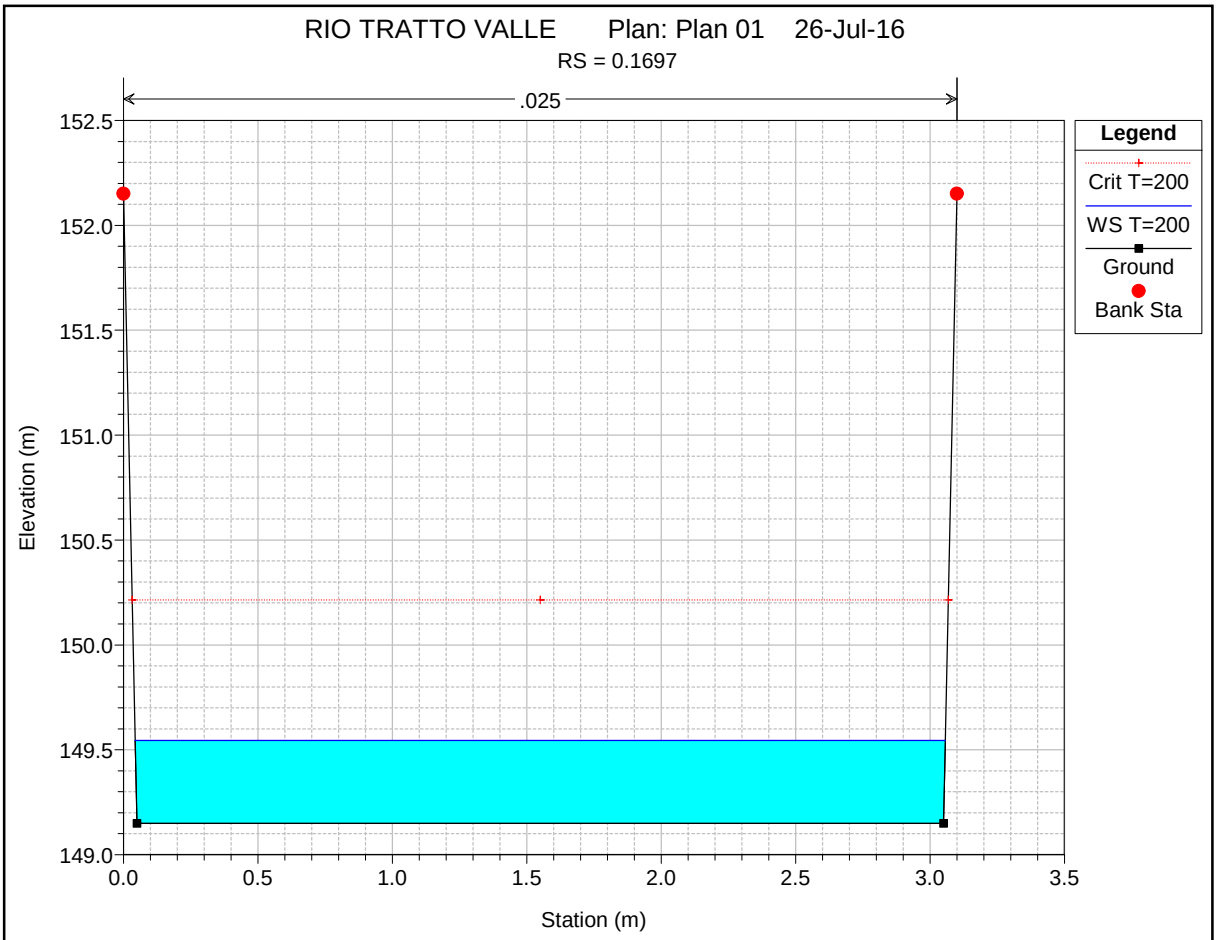

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1762
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
155.0
154.5
154.0
153.5
153.0
152.5
152.0
151.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

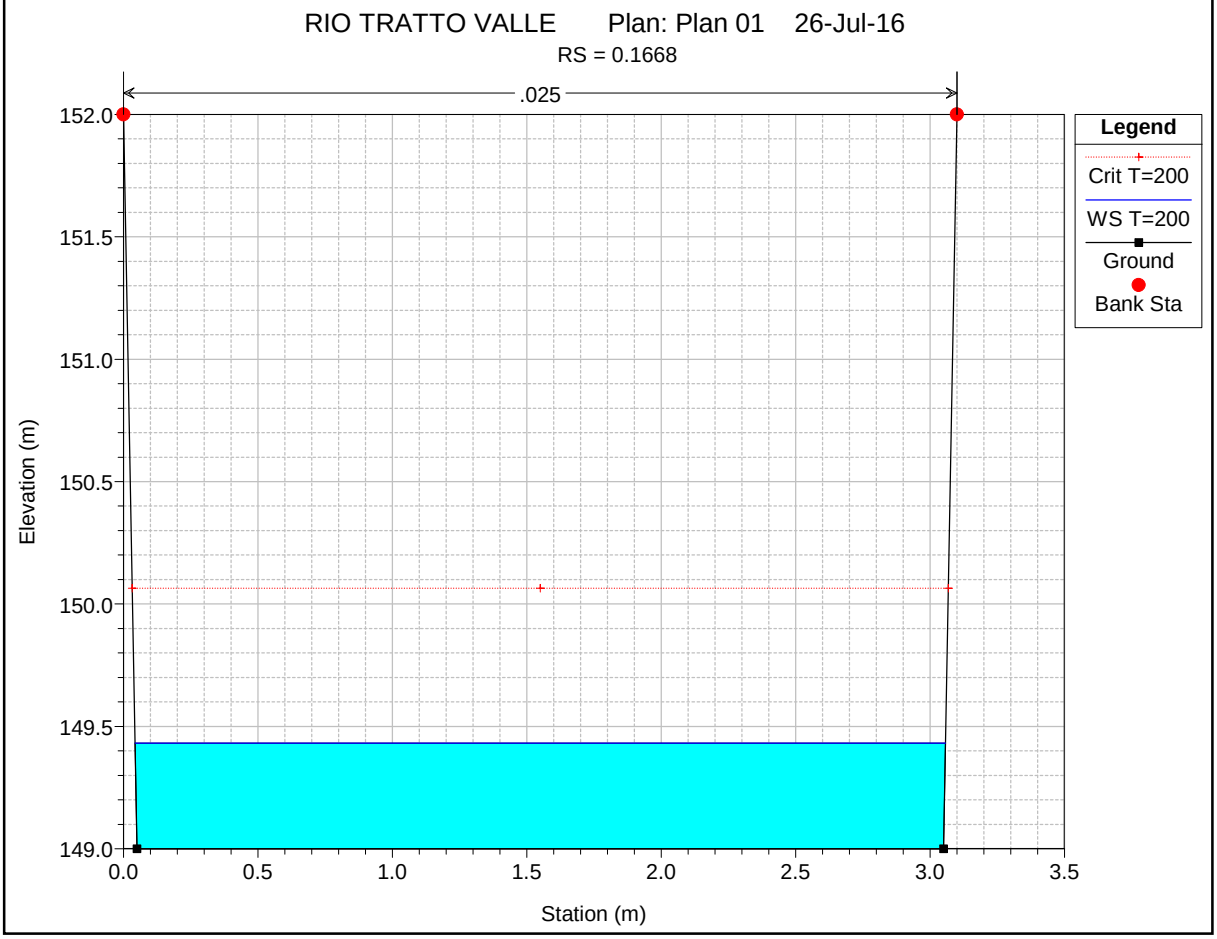

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1760
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
154.5
154.0
153.5
153.0
152.5
152.0
151.5
151.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

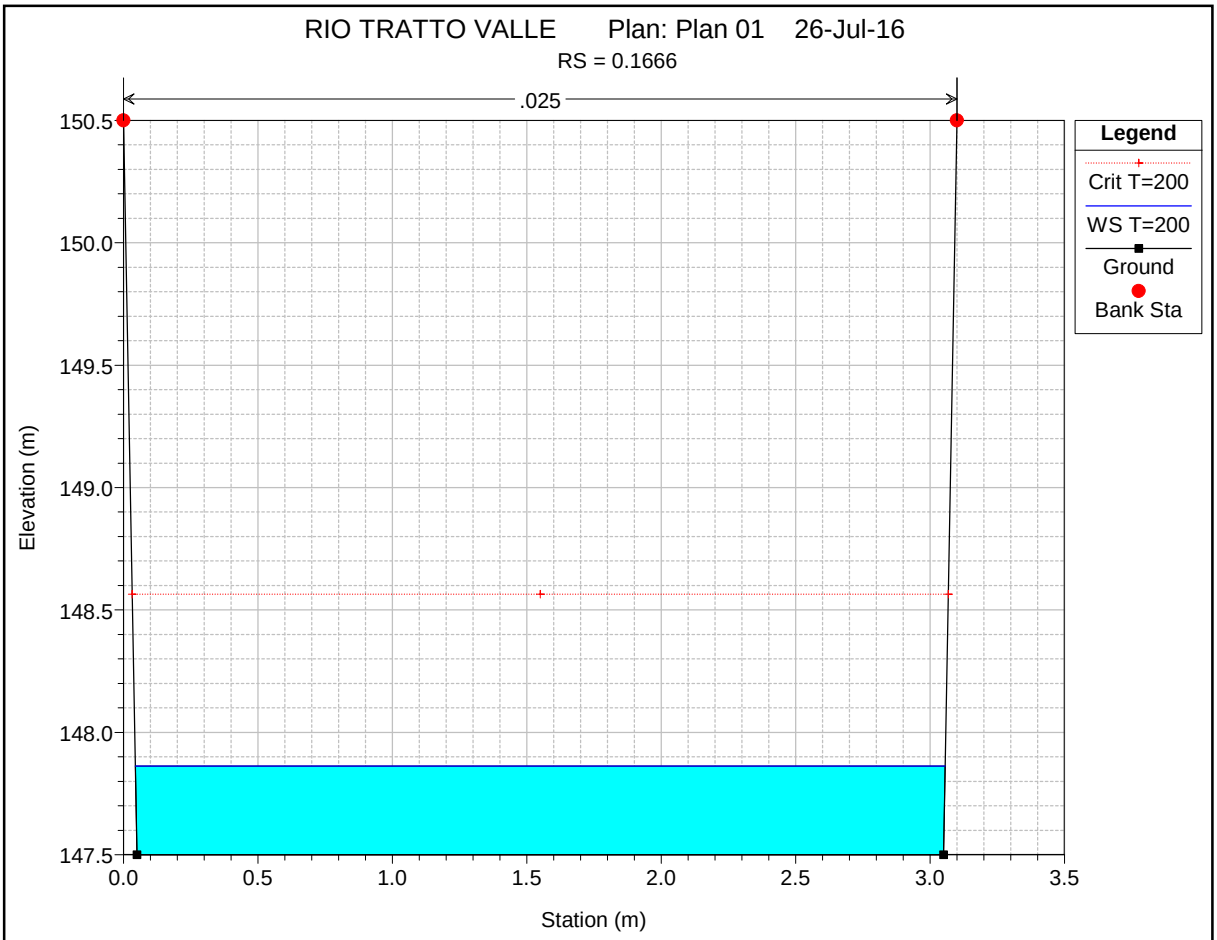

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1729
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
154.5
154.0
153.5
153.0
152.5
152.0
151.5
151.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

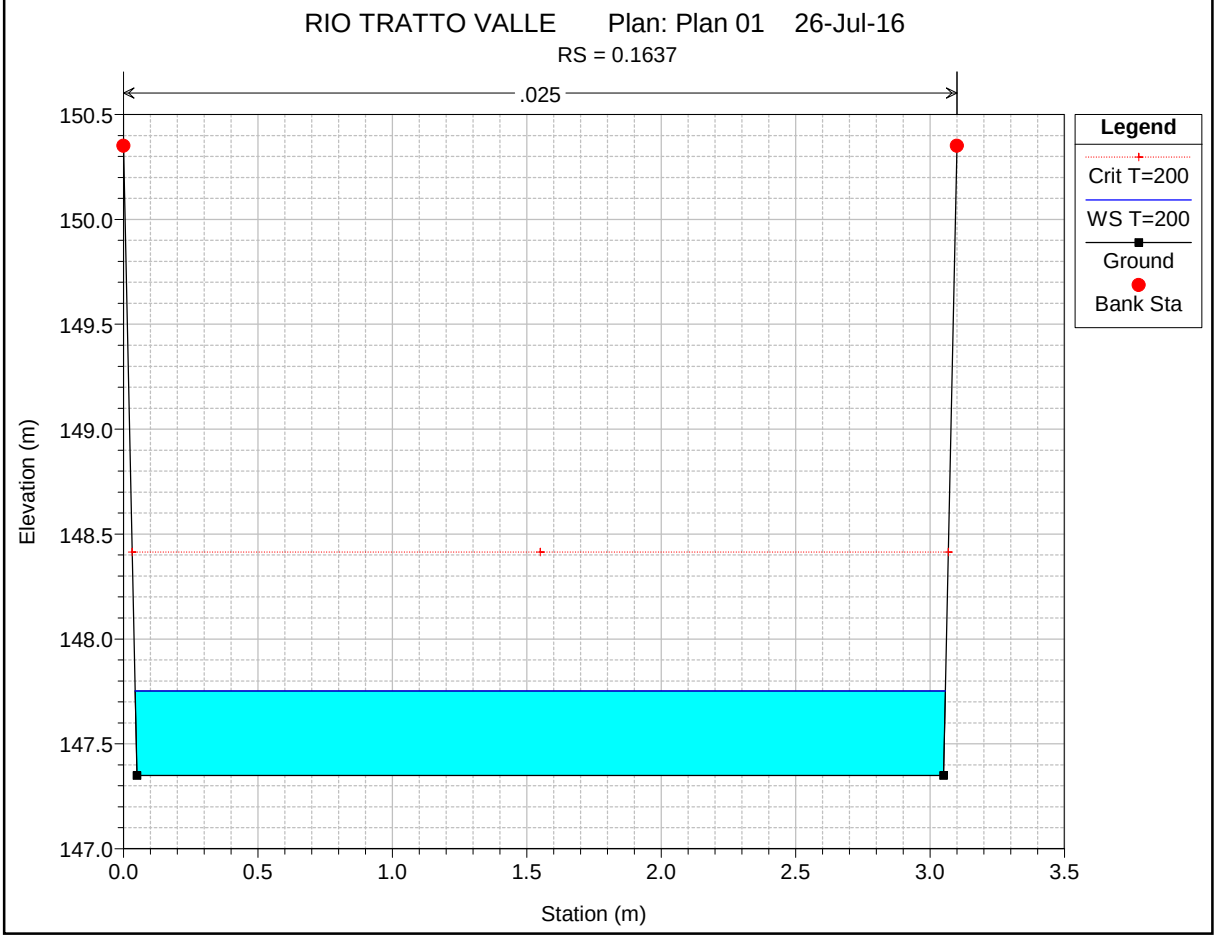

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1728
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
154.0
153.5
153.0
152.5
152.0
151.5
151.0
150.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1698
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
154.0
153.5
153.0
152.5
152.0
151.5
151.0
150.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1697
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
152.5
152.0
151.5
151.0
150.5
150.0
149.5
149.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

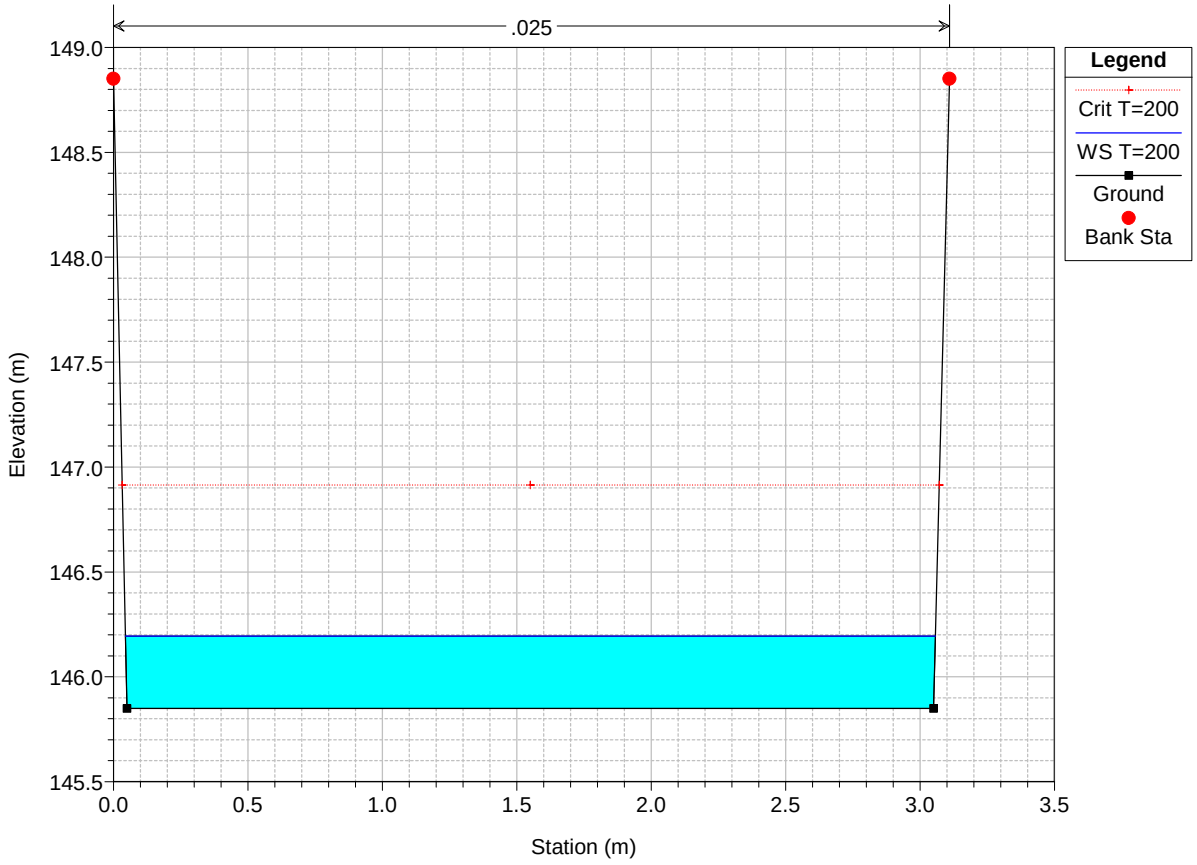

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1668
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
152.0
151.5
151.0
150.5
150.0
149.5
149.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1666
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
150.5
150.0
149.5
149.0
148.5
148.0
147.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1637
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
150.5
150.0
149.5
149.0
148.5
148.0
147.5
147.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

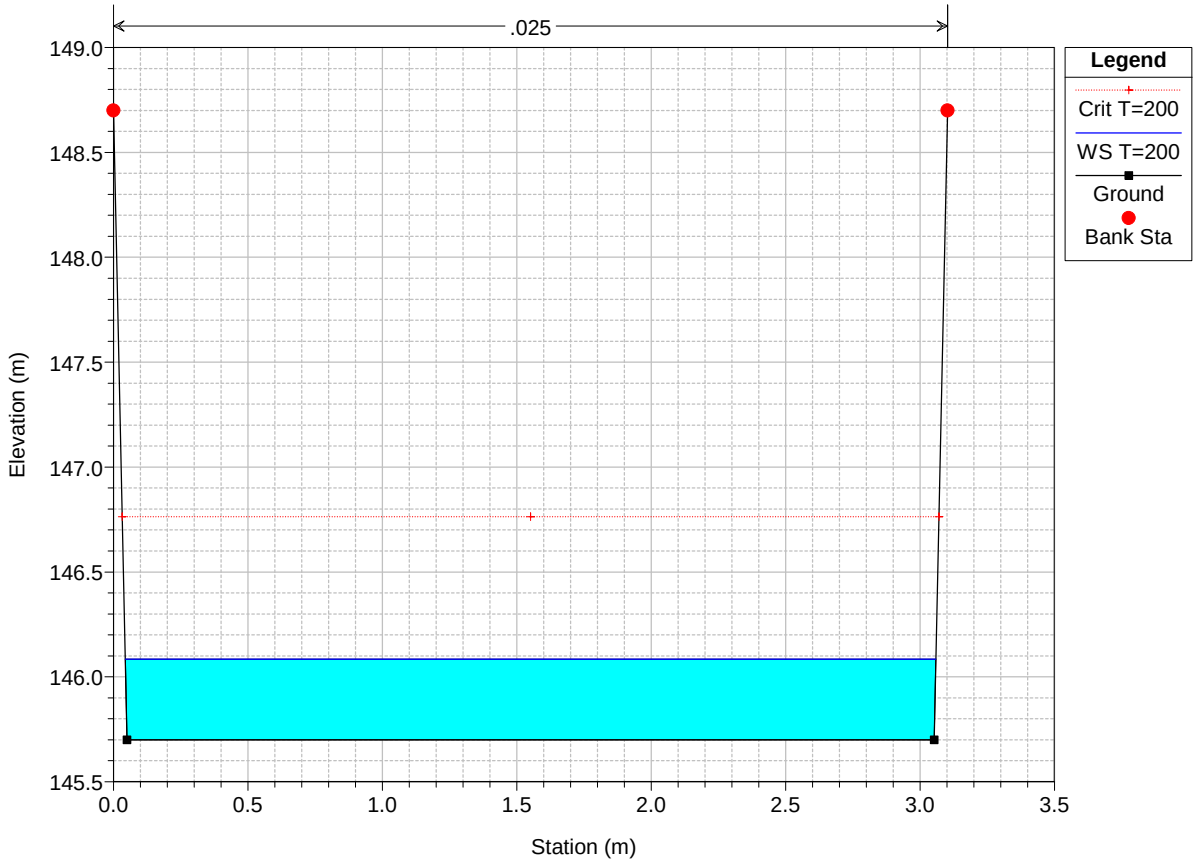
RIO TRATTO VALLE Plan: Plan 01 26-Jul-16

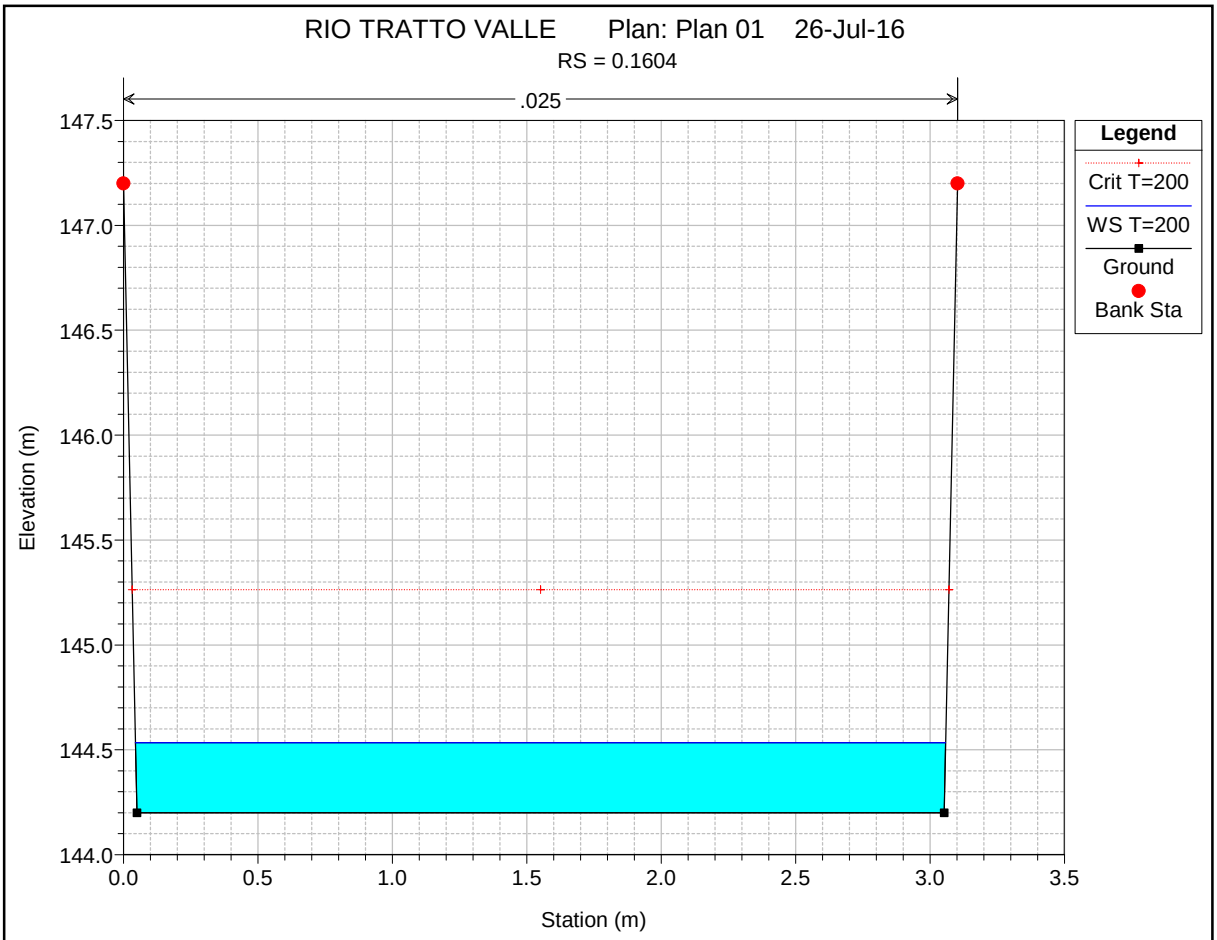
RS = 0.1635

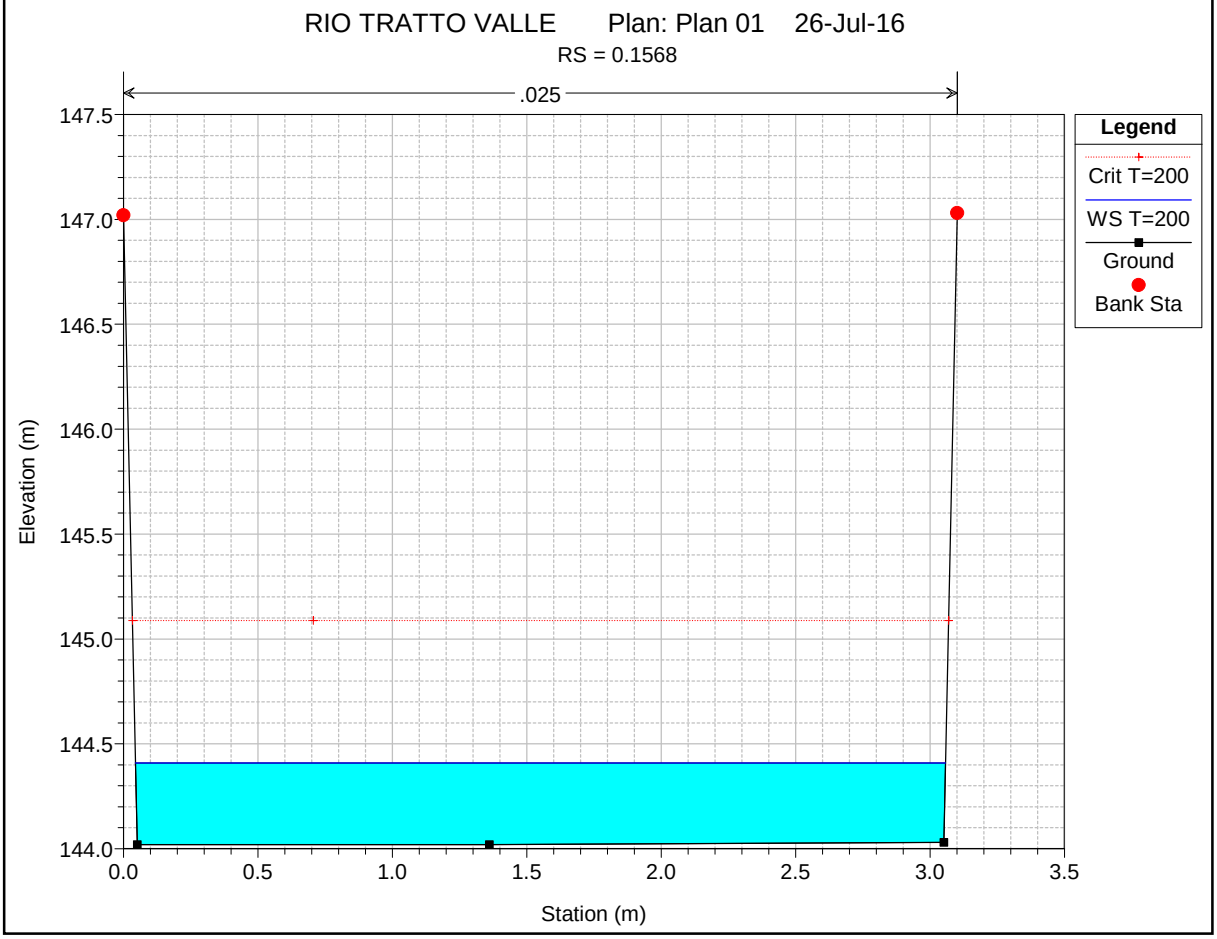


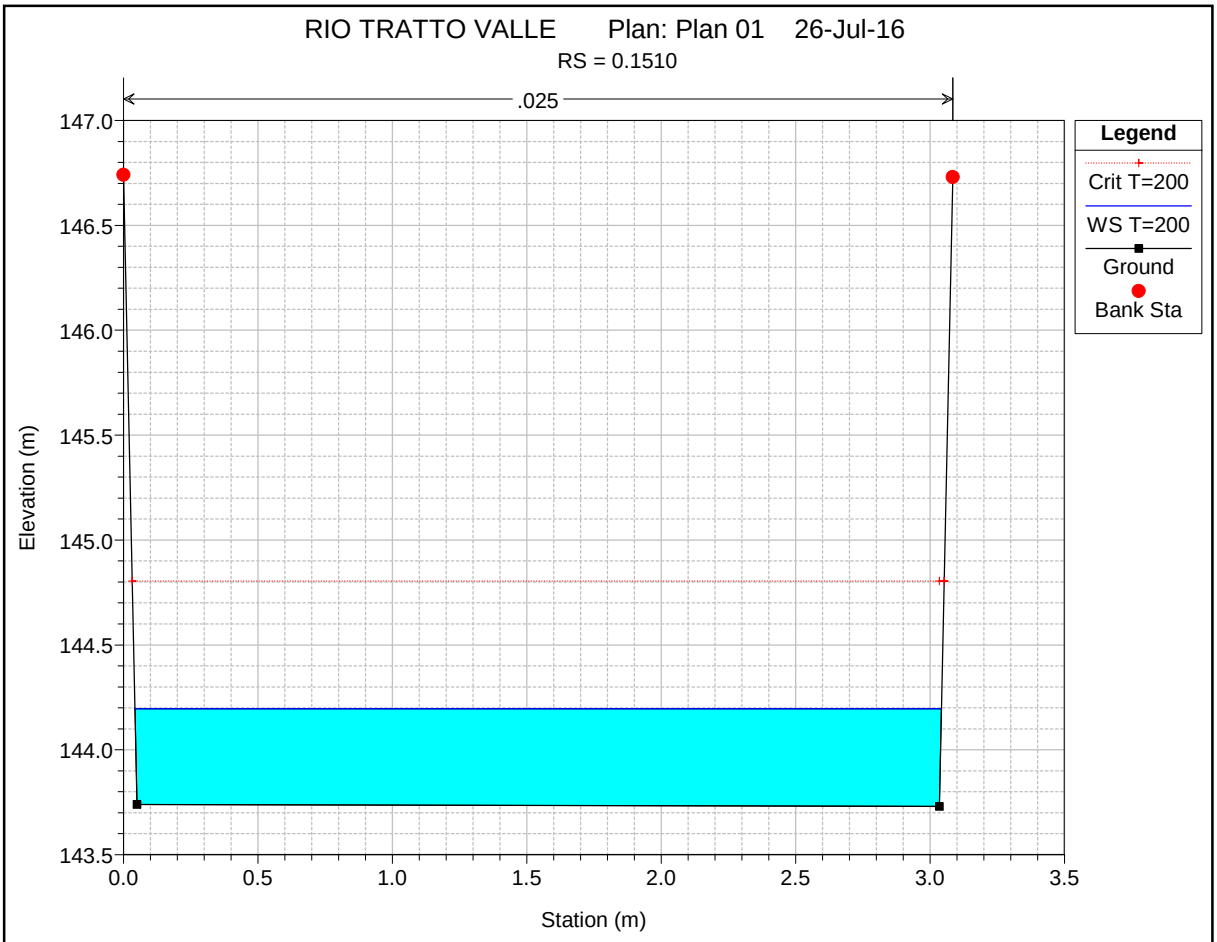
RIO TRATTO VALLE Plan: Plan 01 26-Jul-16

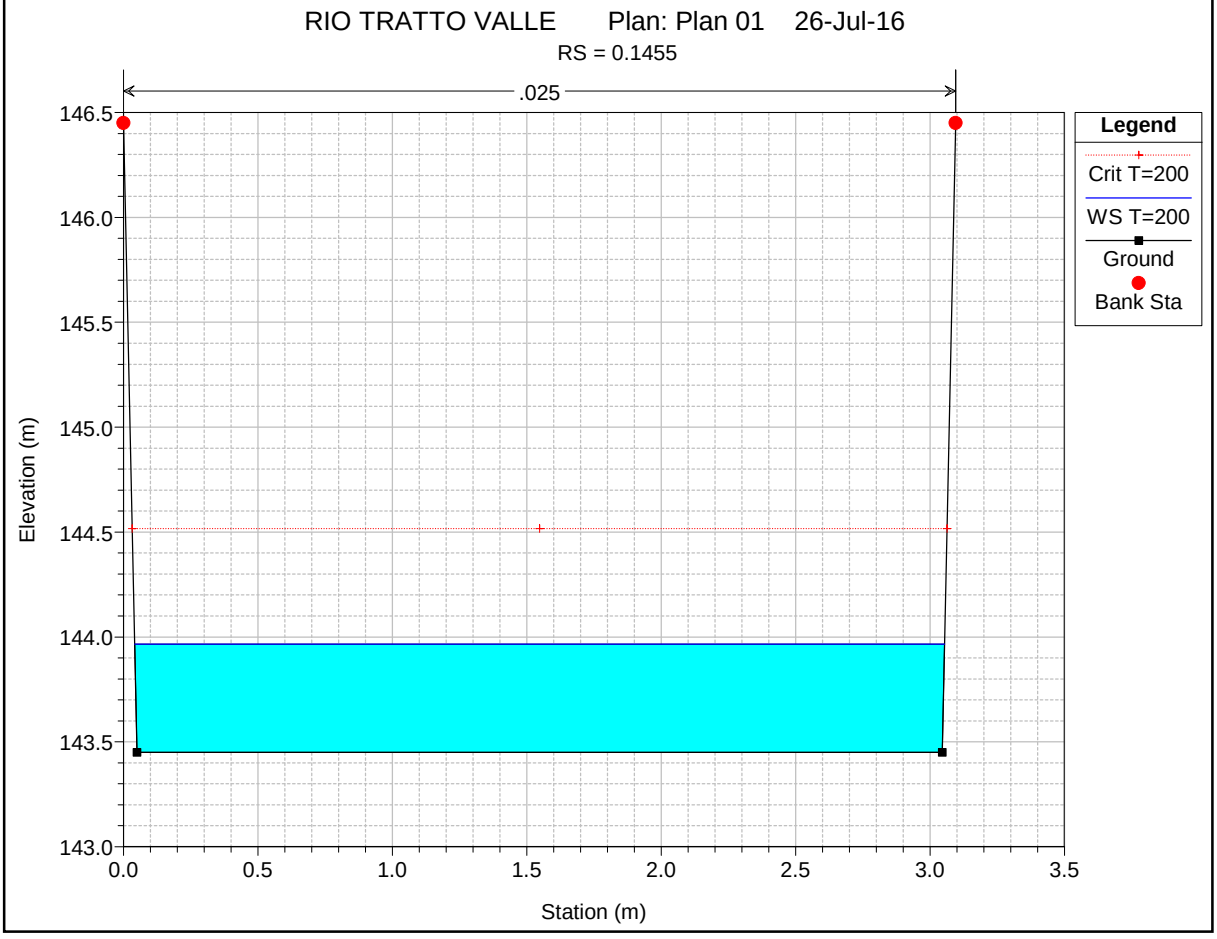
RS = 0.1606

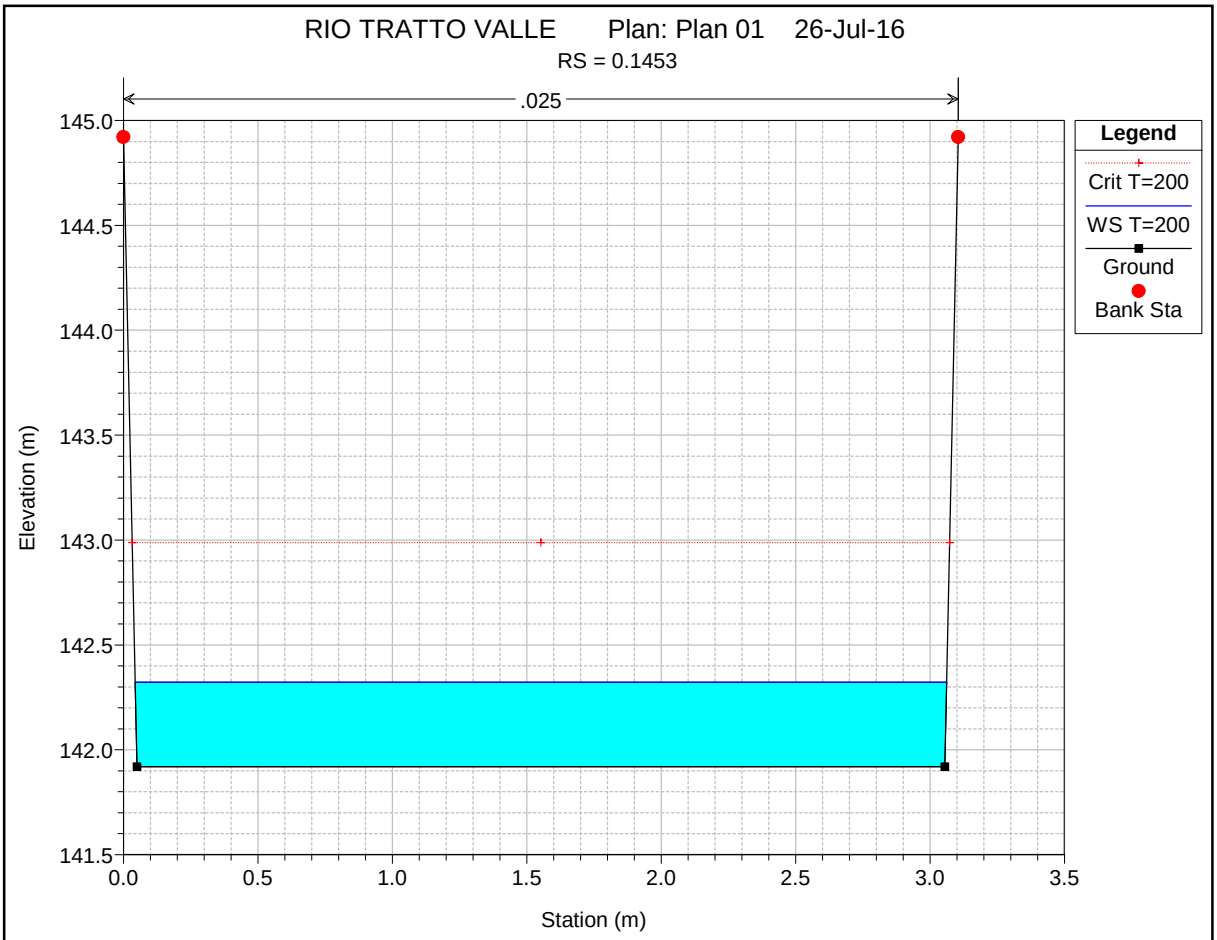


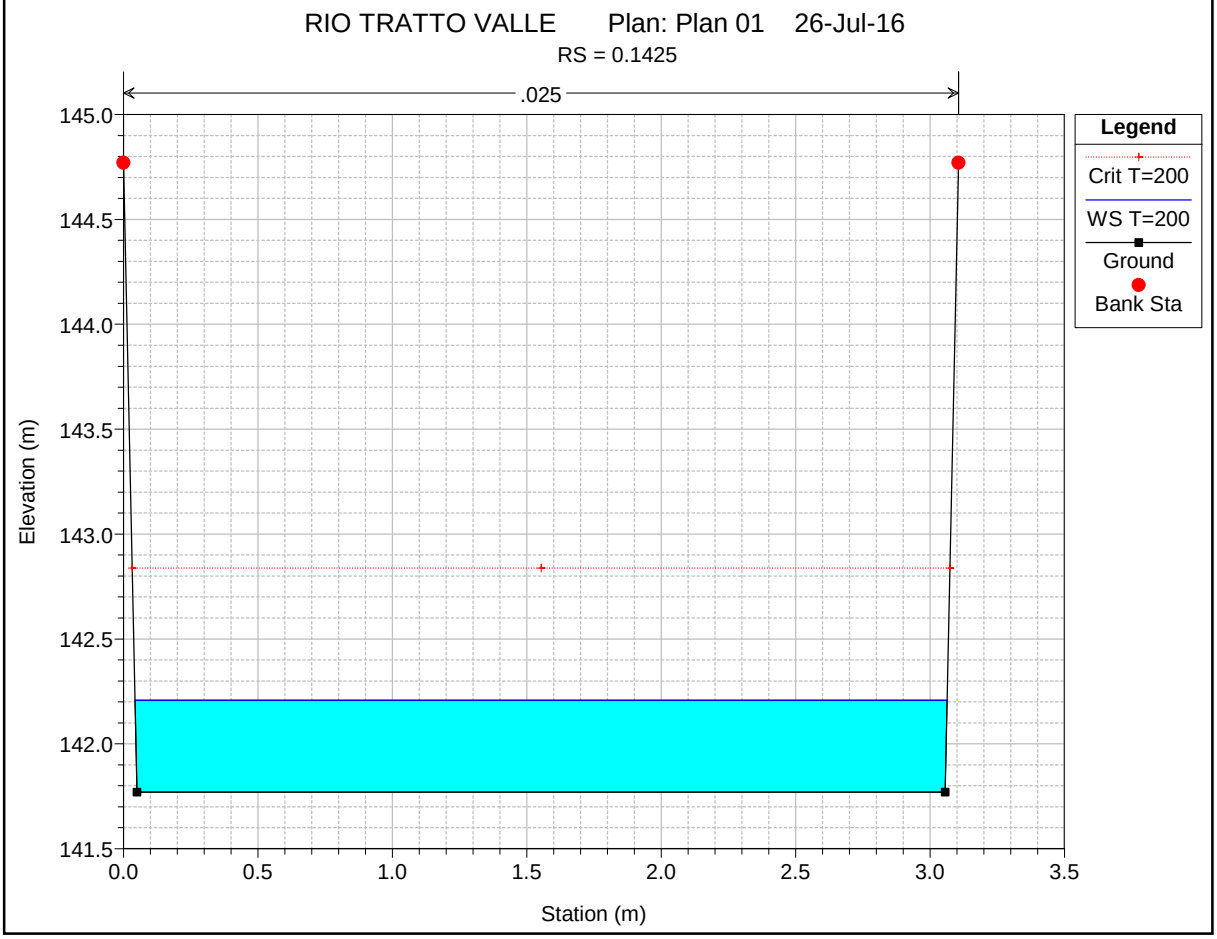

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1604
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
147.5
147.0
146.5
146.0
145.5
145.0
144.5
144.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

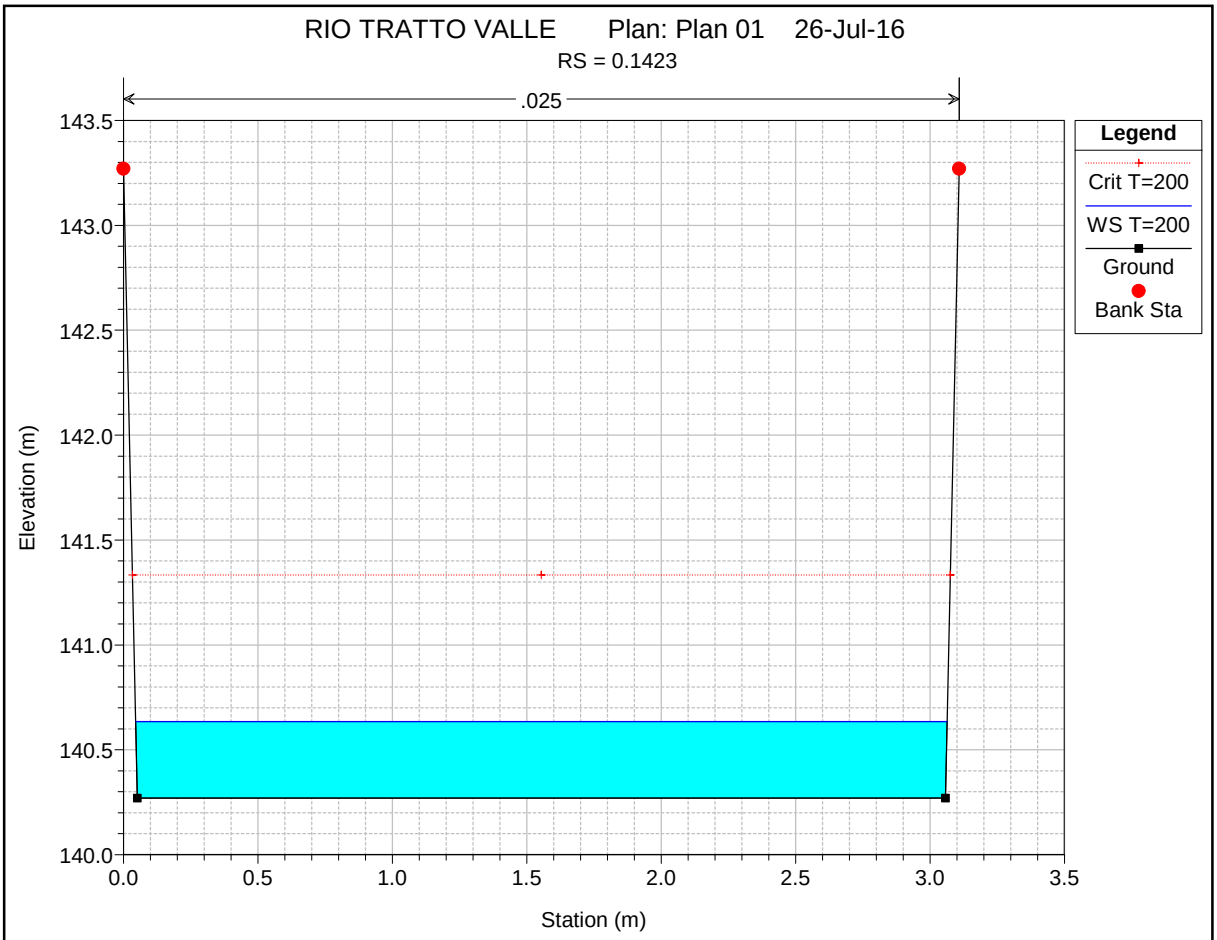

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1568
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
147.5
147.0
146.5
146.0
145.5
145.0
144.5
144.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

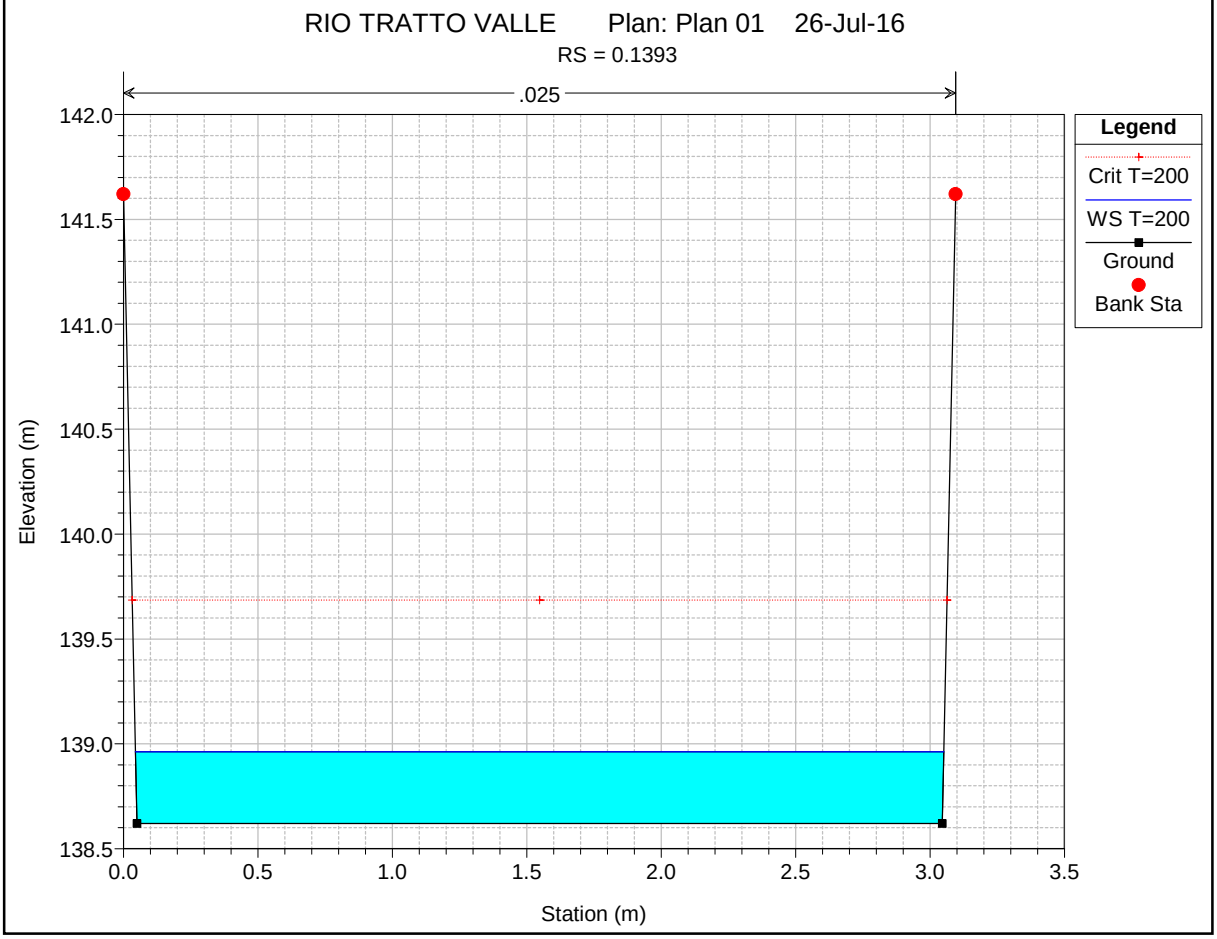

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1510
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
147.0
146.5
146.0
145.5
145.0
144.5
144.0
143.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

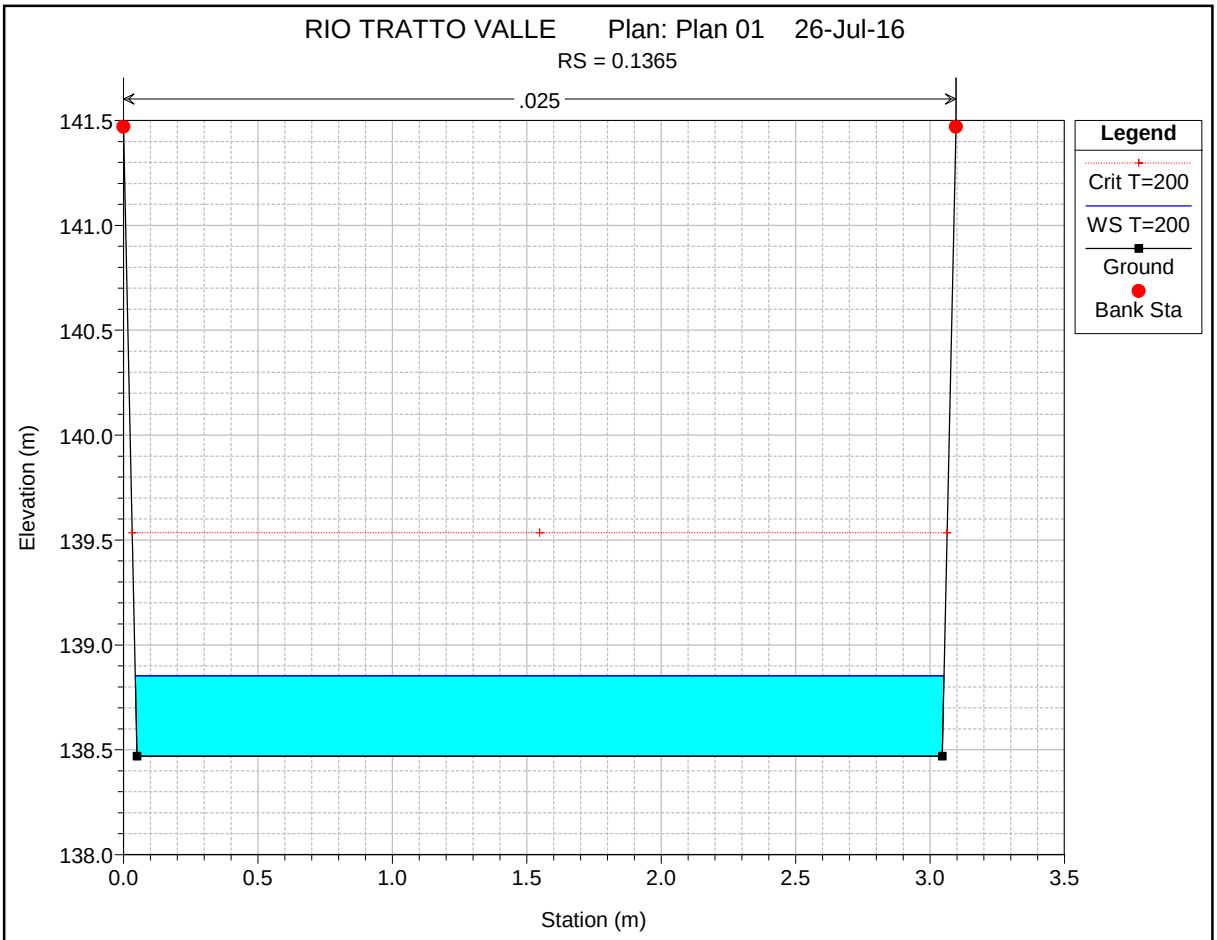

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1455
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
146.5
146.0
145.5
145.0
144.5
144.0
143.5
143.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

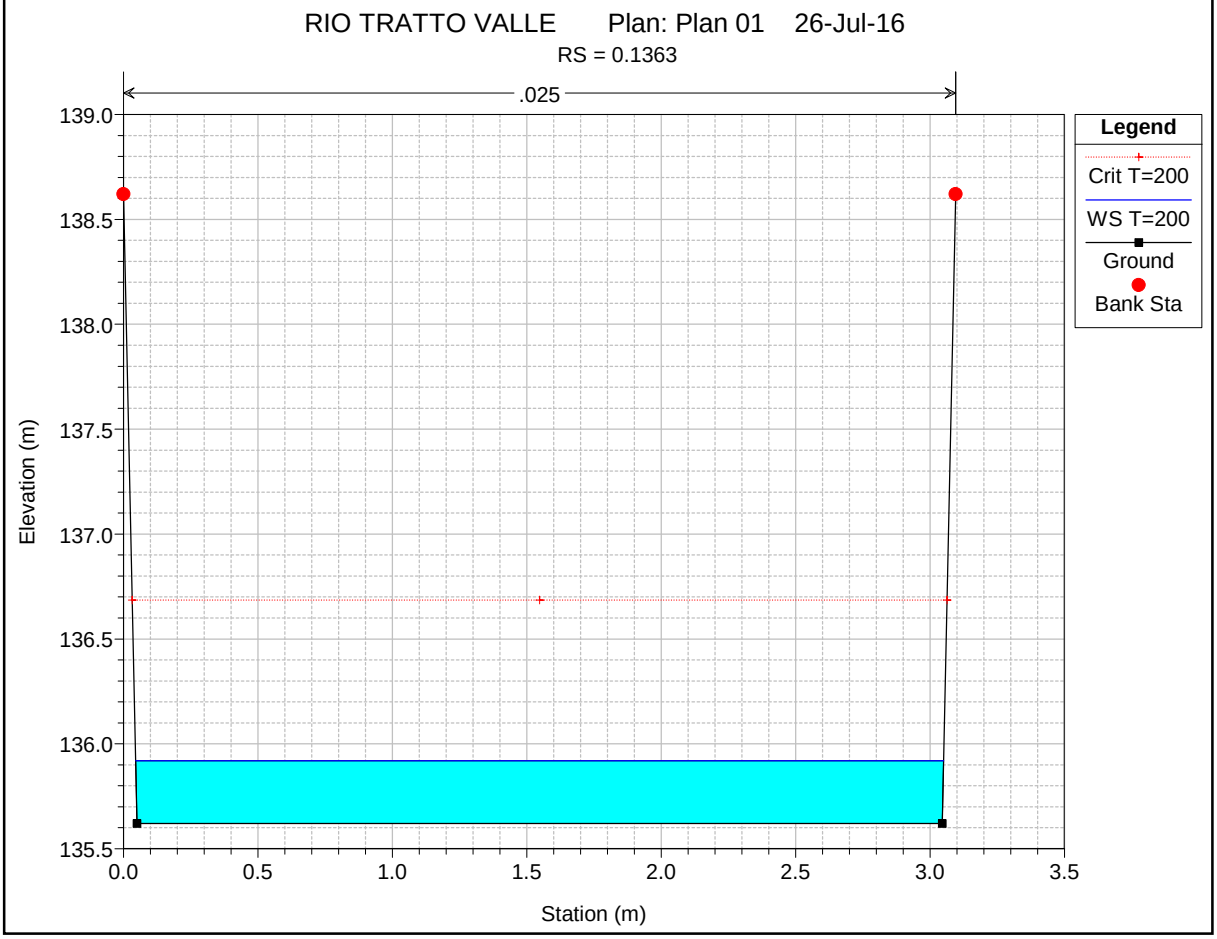

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1453
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
145.0
144.5
144.0
143.5
143.0
142.5
142.0
141.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

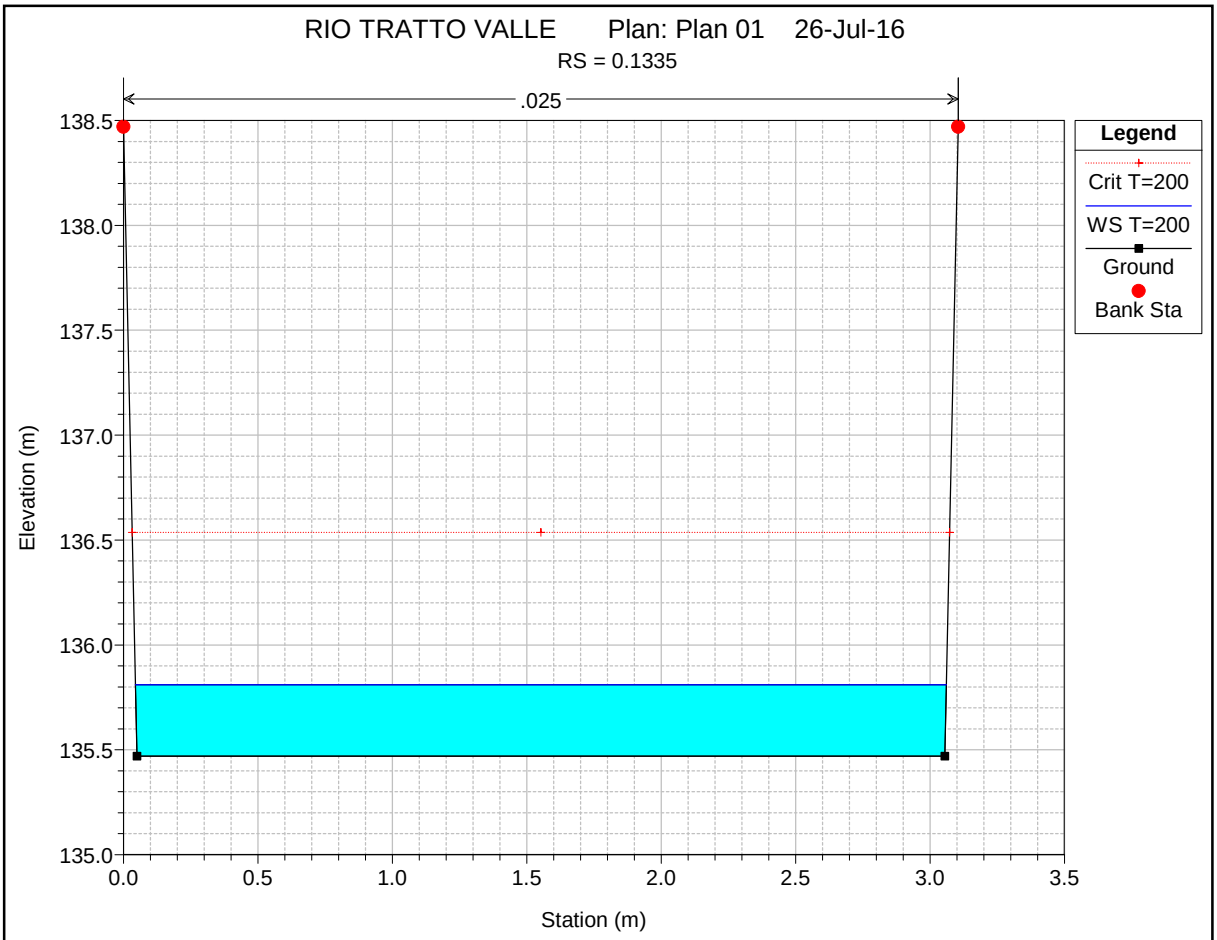

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1425
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
145.0
144.5
144.0
143.5
143.0
142.5
142.0
141.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

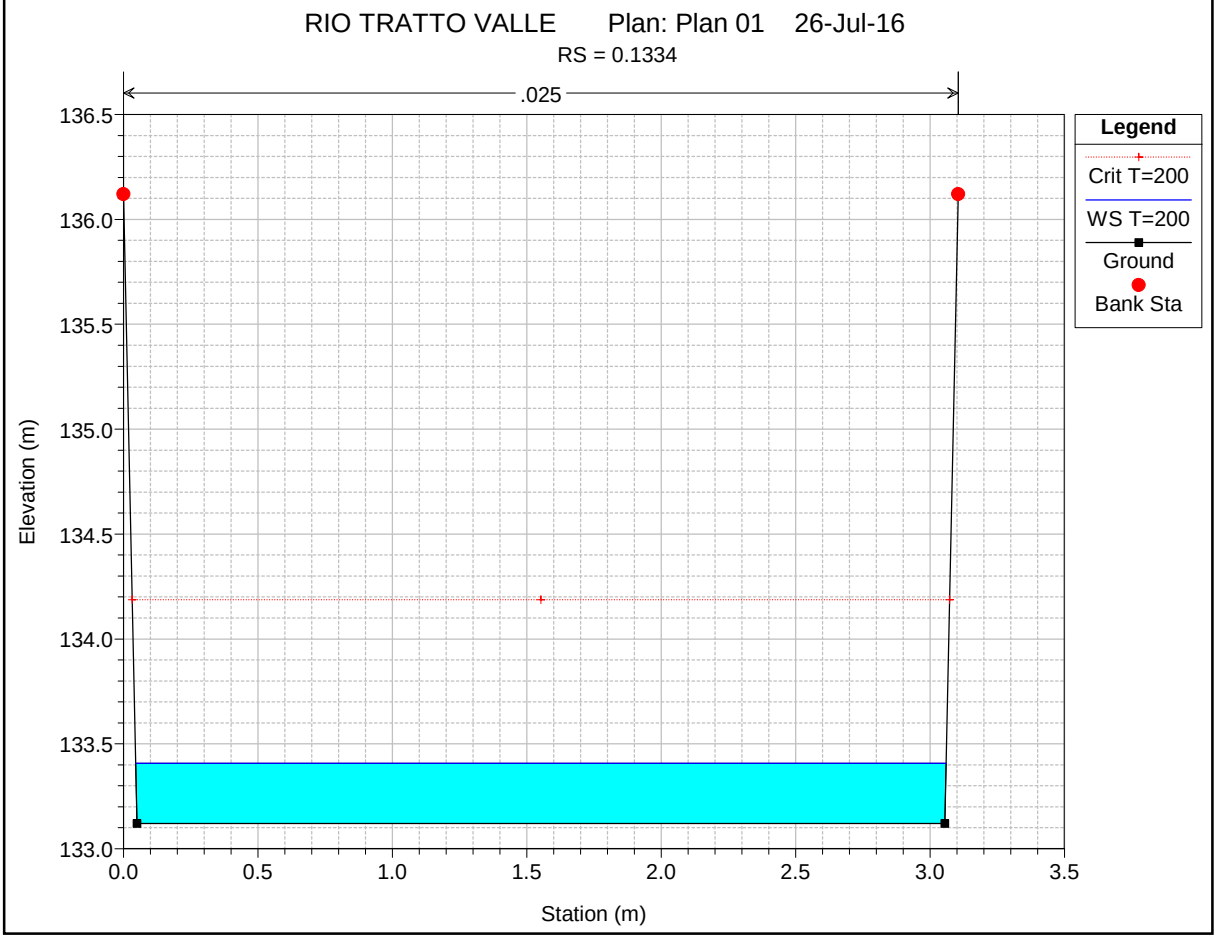

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1423
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
143.5
143.0
142.5
142.0
141.5
141.0
140.5
140.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

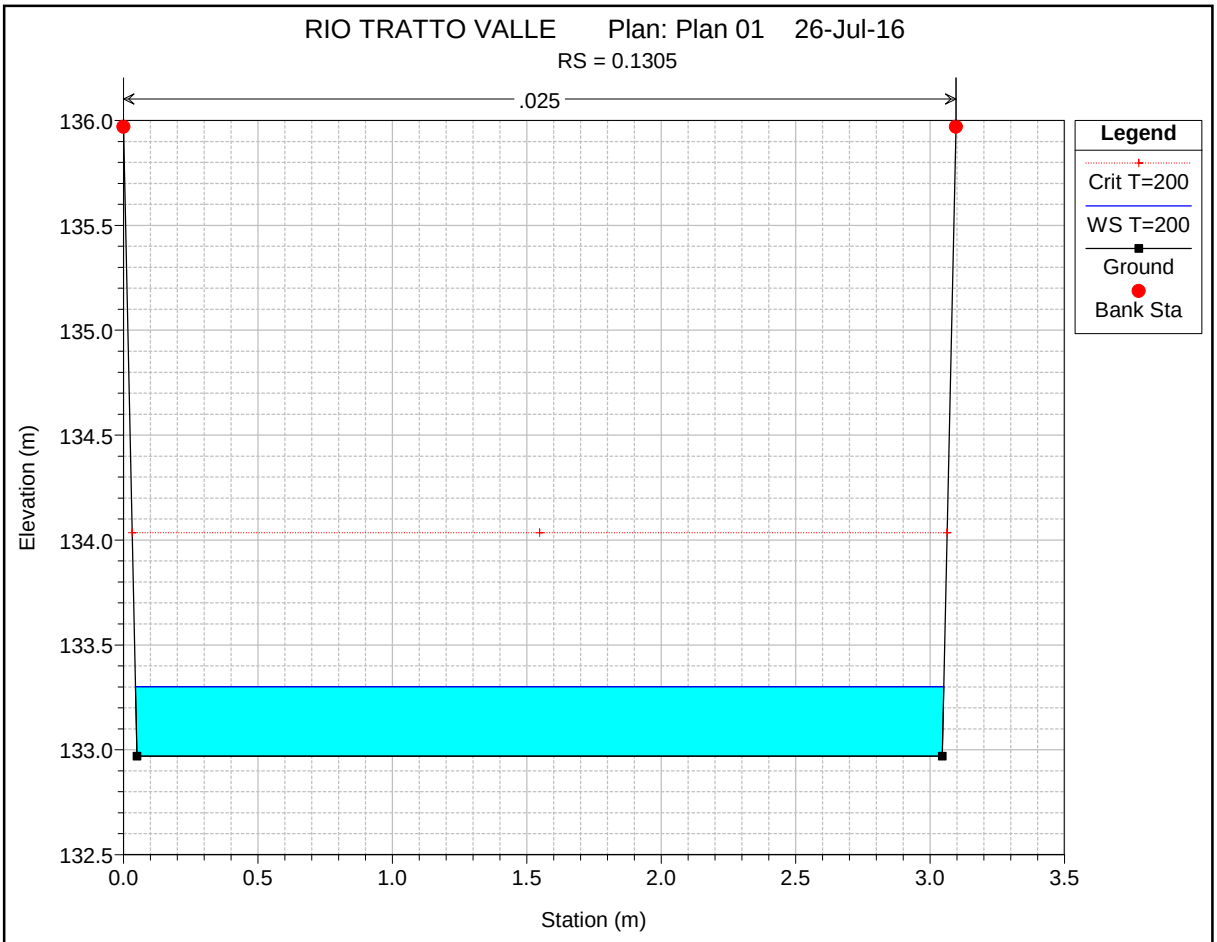

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1393
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
142.0
141.5
141.0
140.5
140.0
139.5
139.0
138.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

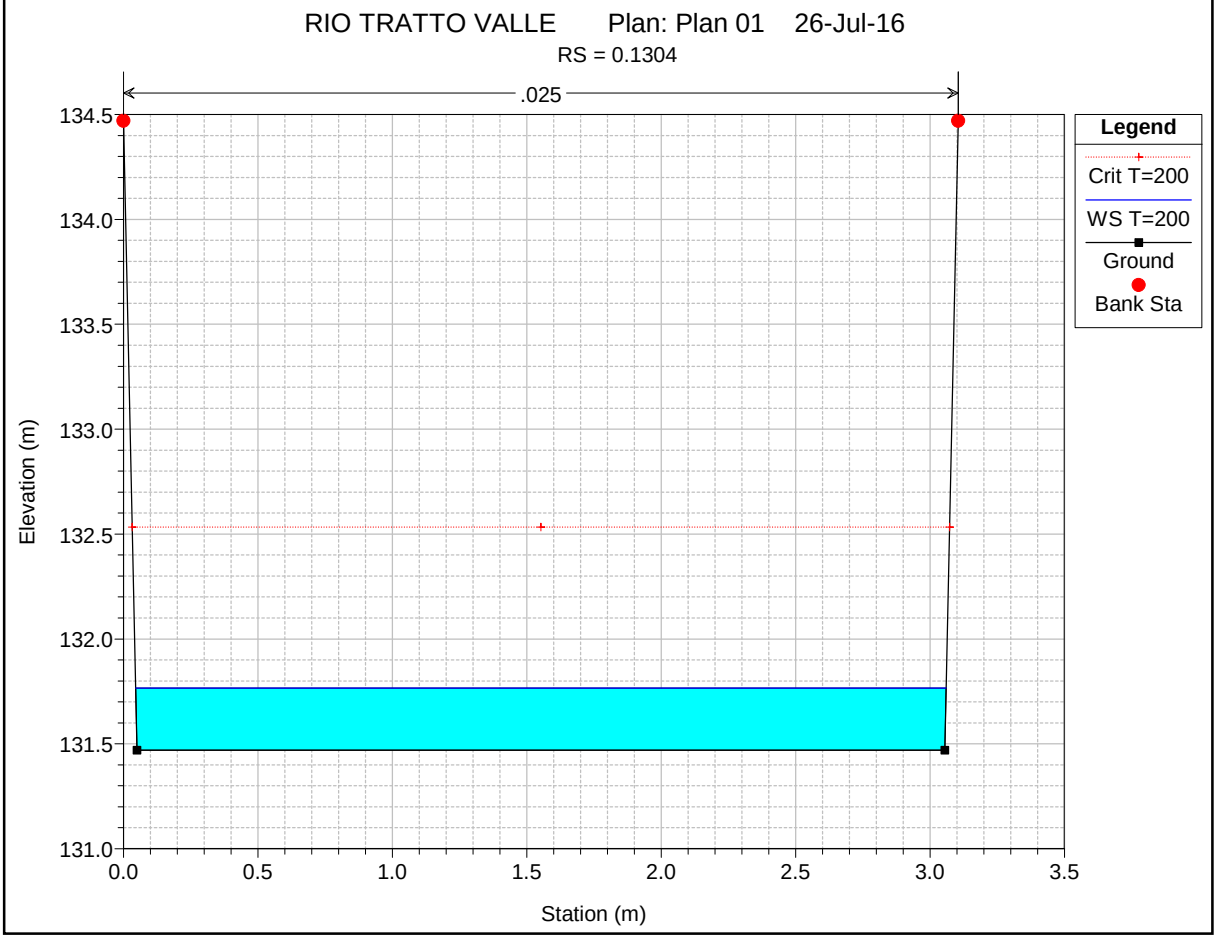

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1365
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
141.5
141.0
140.5
140.0
139.5
139.0
138.5
138.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

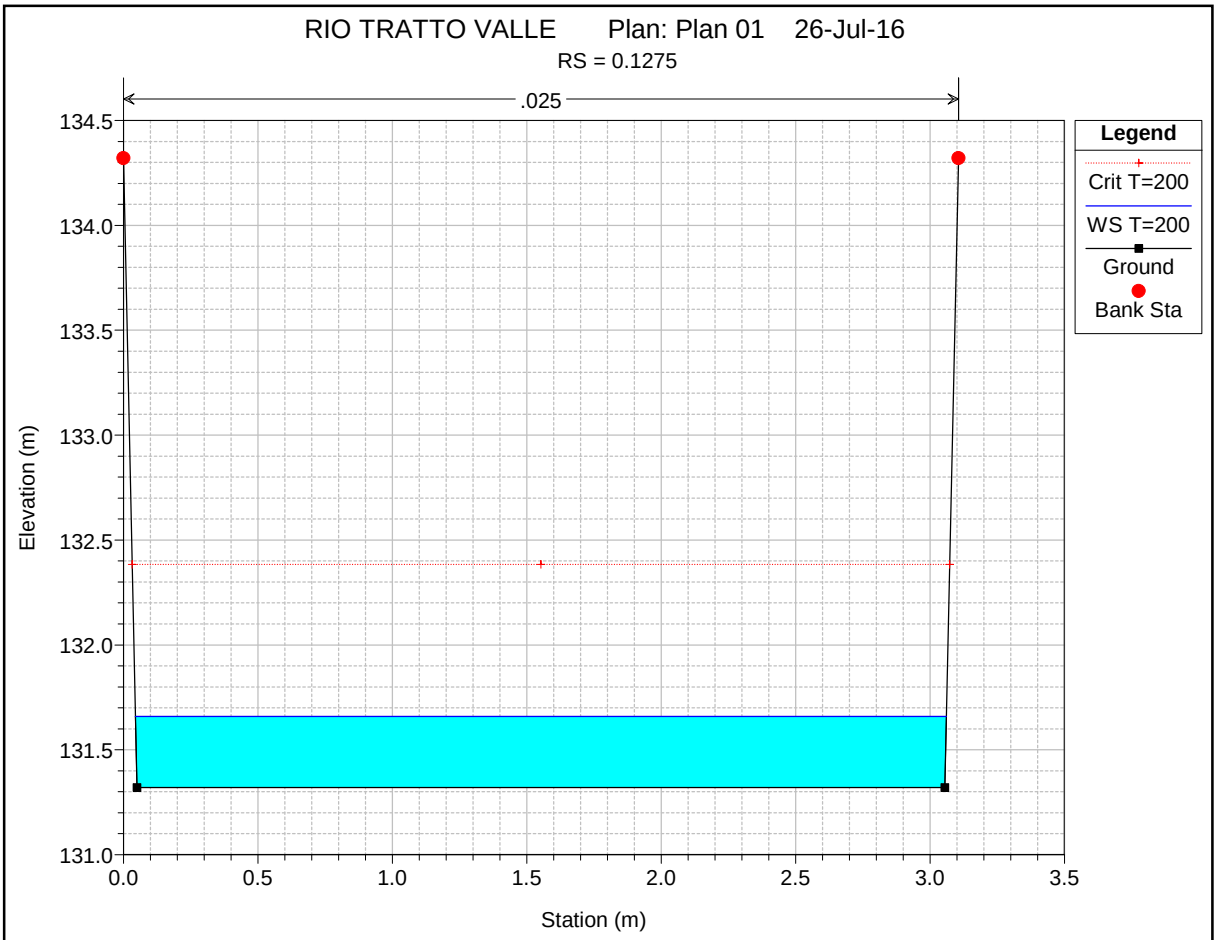

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1363
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
139.0
138.5
138.0
137.5
137.0
136.5
136.0
135.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

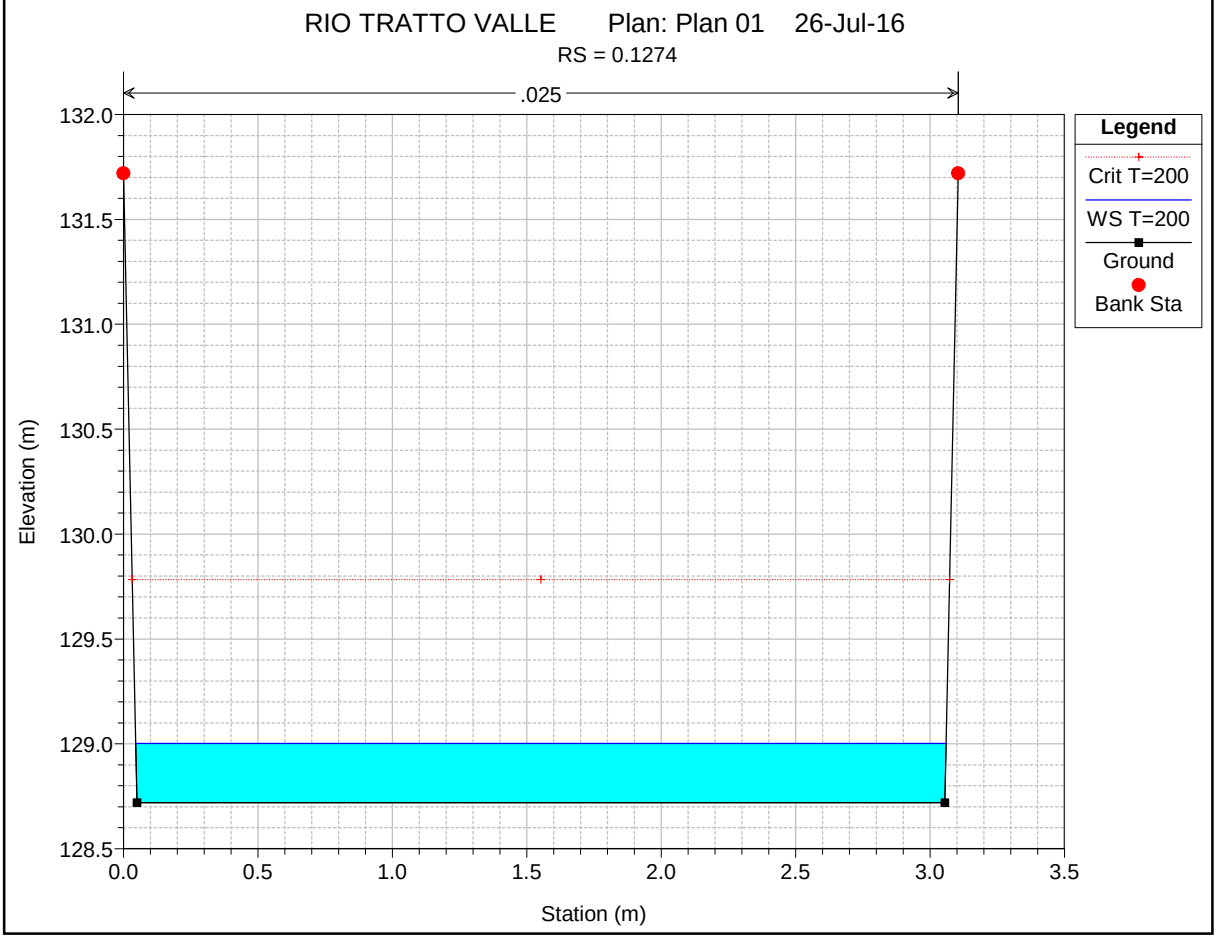

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1335
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
138.5
138.0
137.5
137.0
136.5
136.0
135.5
135.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

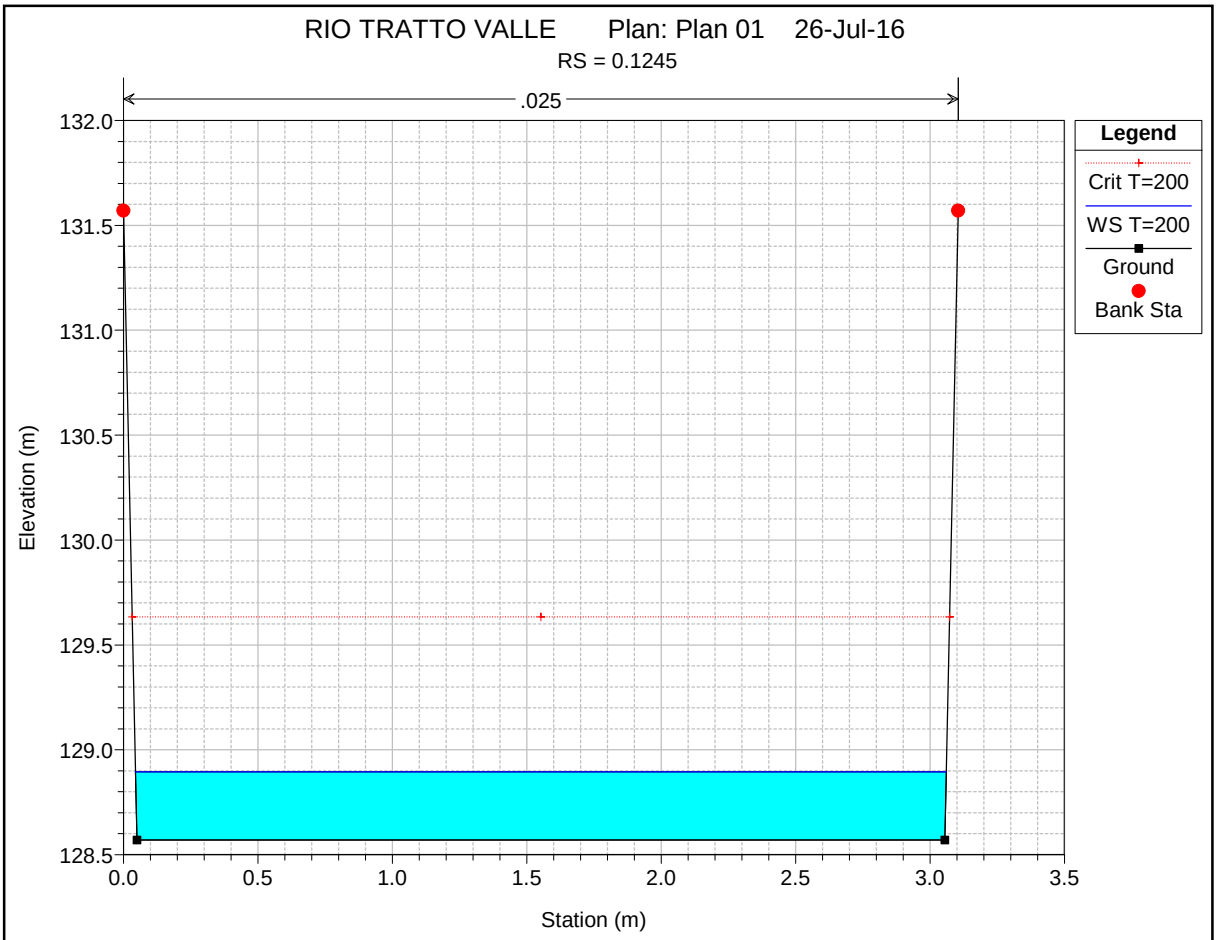

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1334
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
136.5
136.0
135.5
135.0
134.5
134.0
133.5
133.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

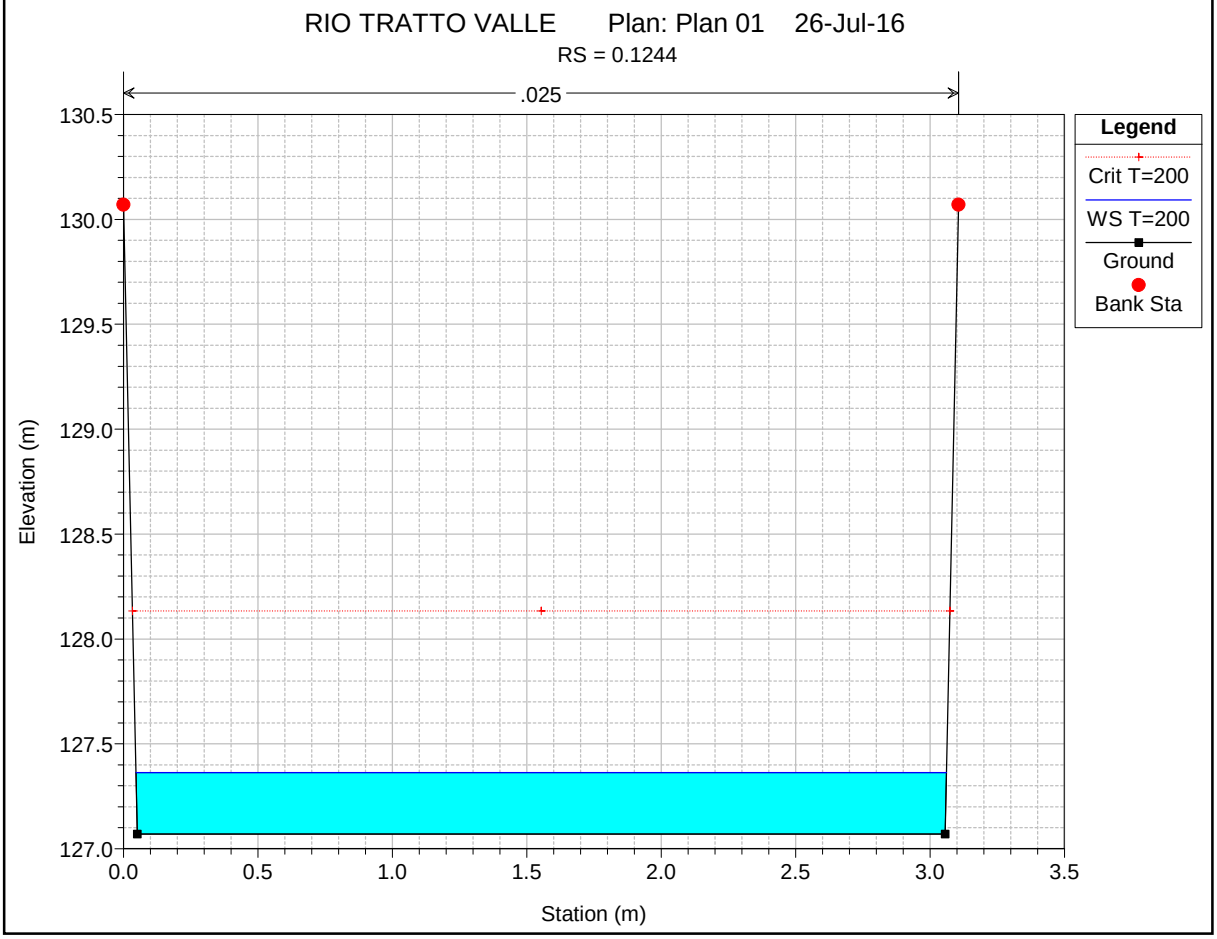

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1305
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
136.0
135.5
135.0
134.5
134.0
133.5
133.0
132.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

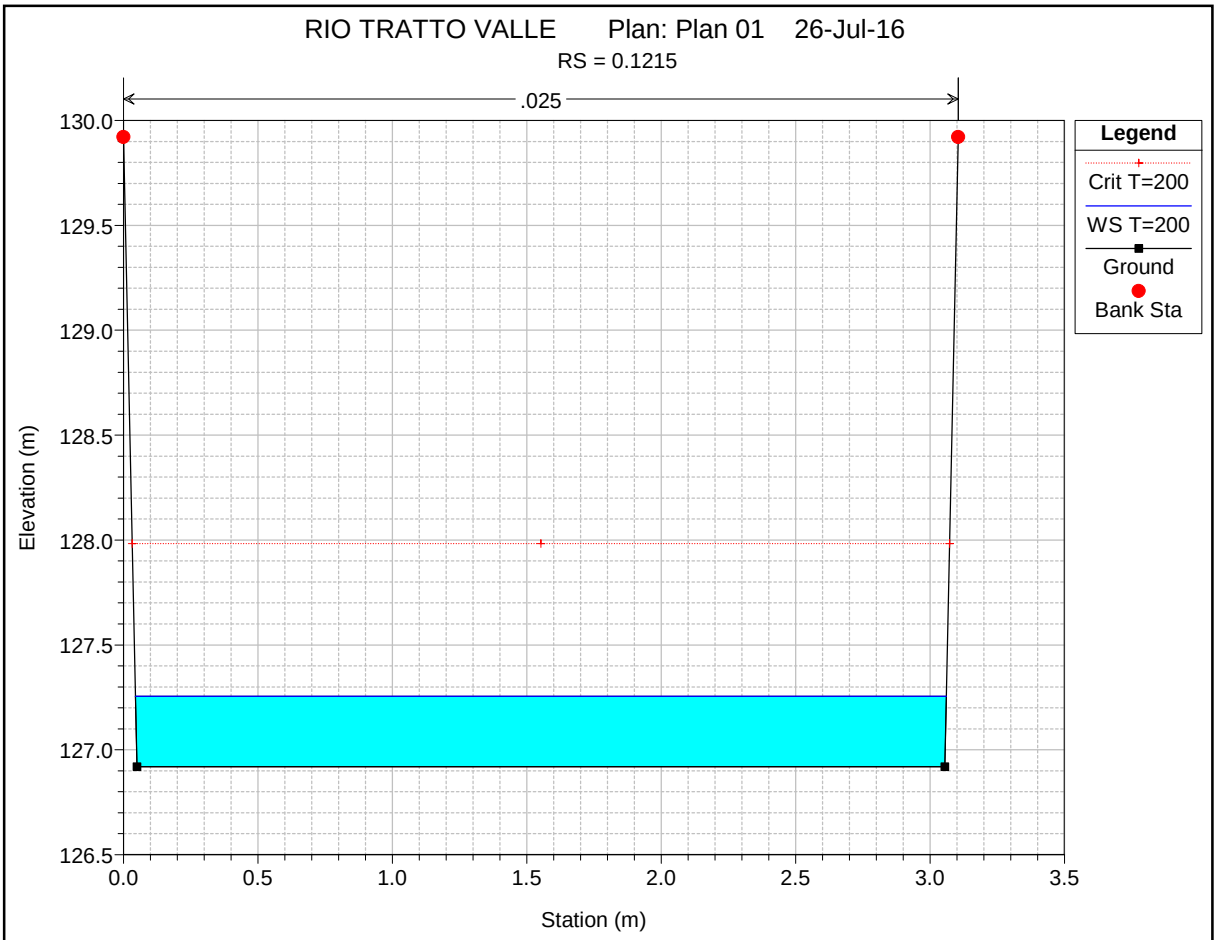

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1304
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
134.5
134.0
133.5
133.0
132.5
132.0
131.5
131.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

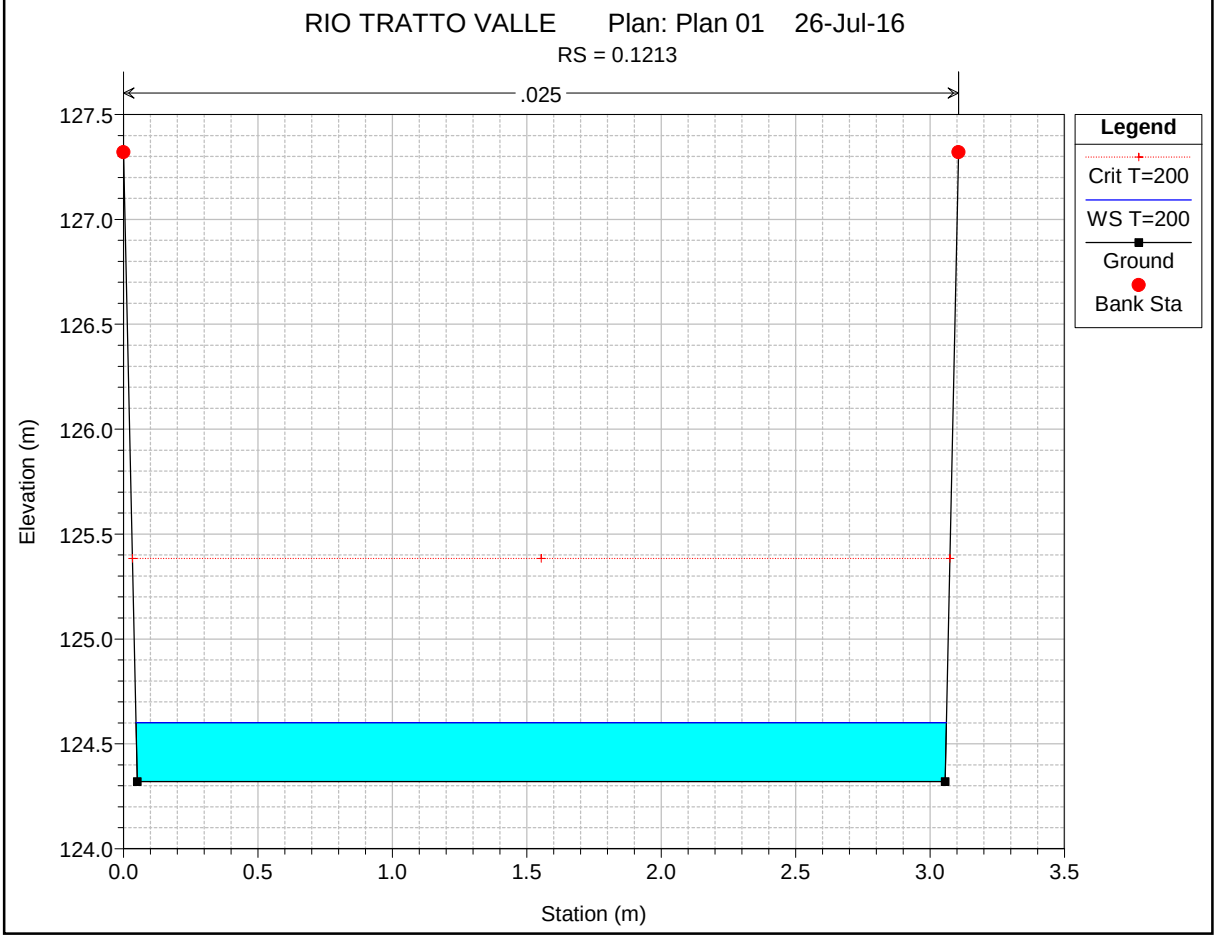

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1275
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
134.5
134.0
133.5
133.0
132.5
132.0
131.5
131.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

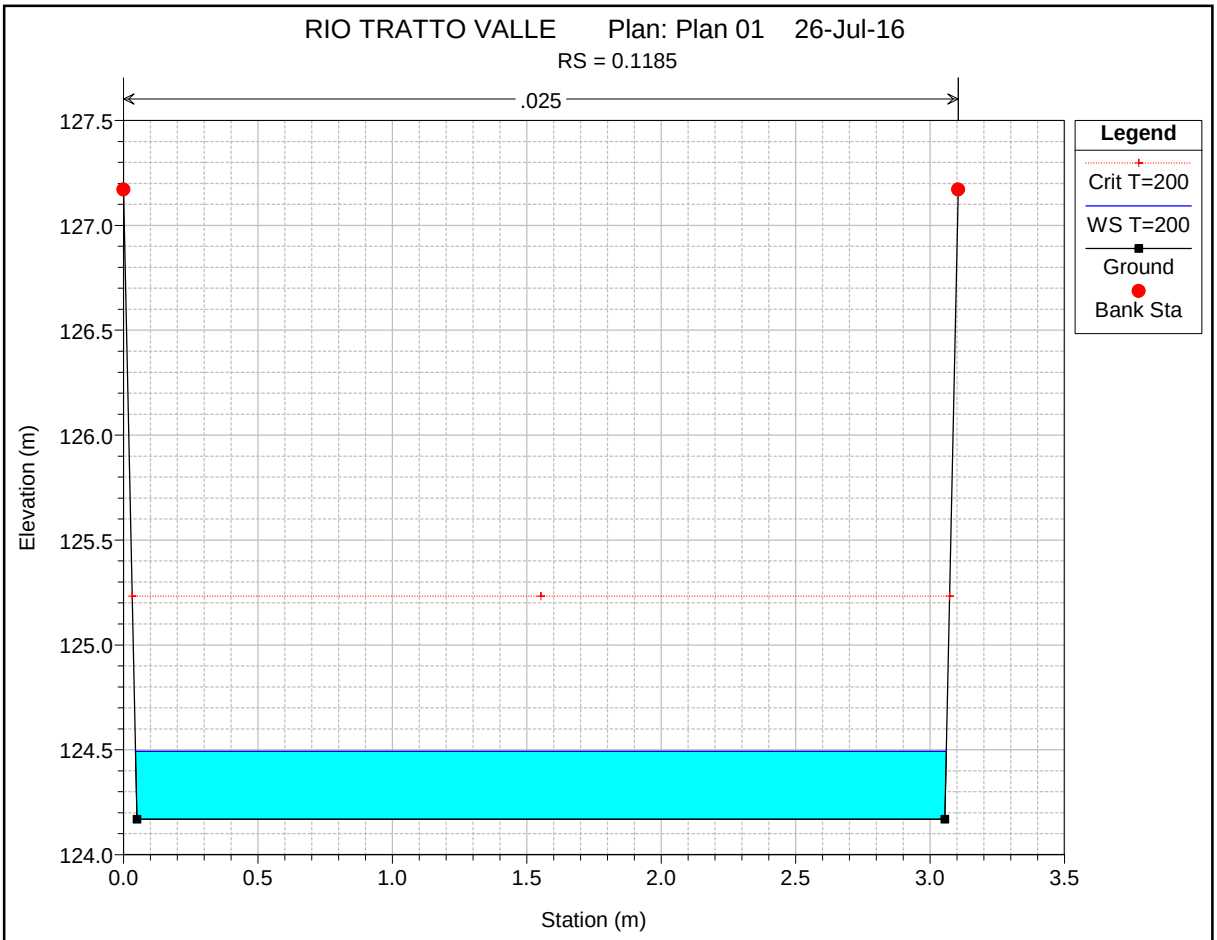

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1274
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
132.0
131.5
131.0
130.5
130.0
129.5
129.0
128.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

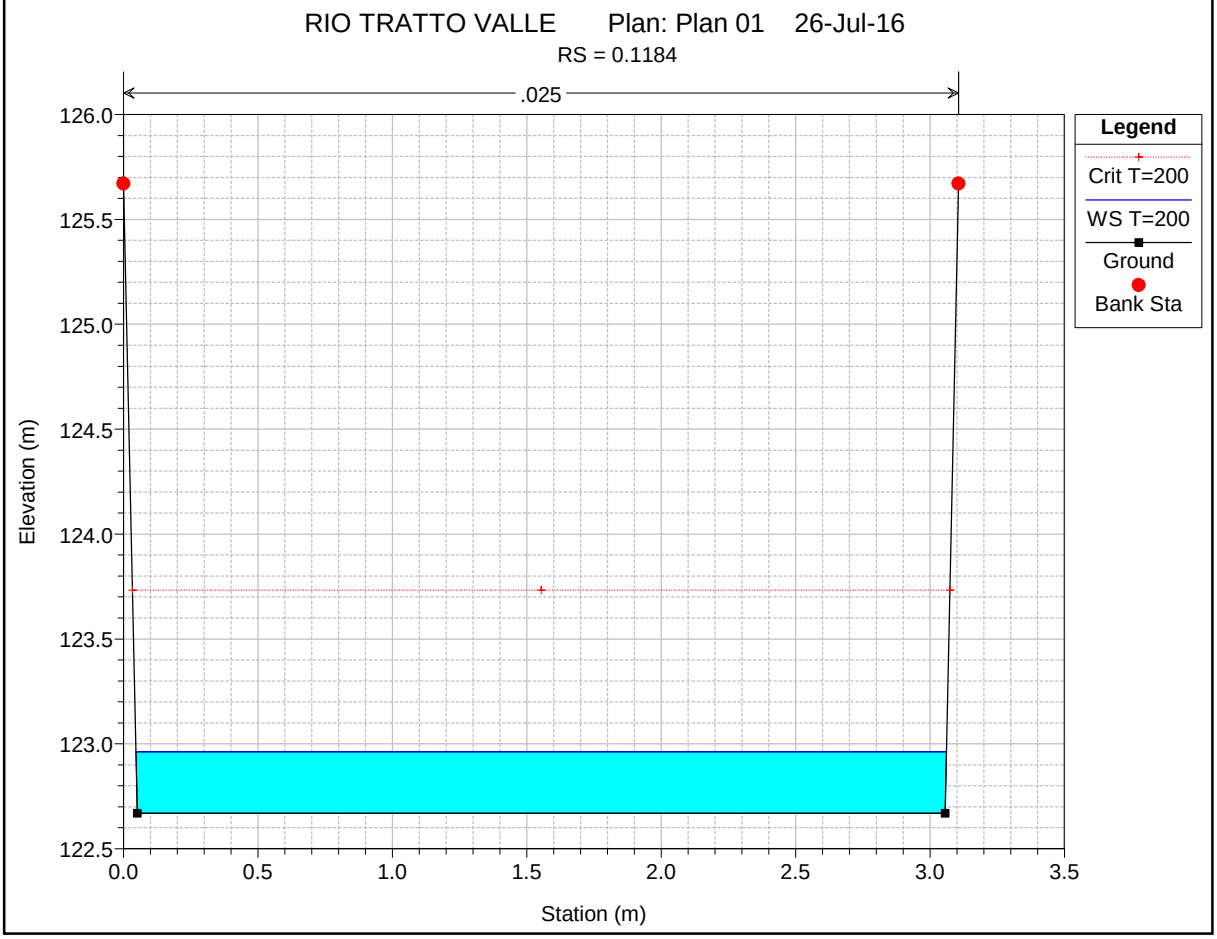

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1245
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
132.0
131.5
131.0
130.5
130.0
129.5
129.0
128.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

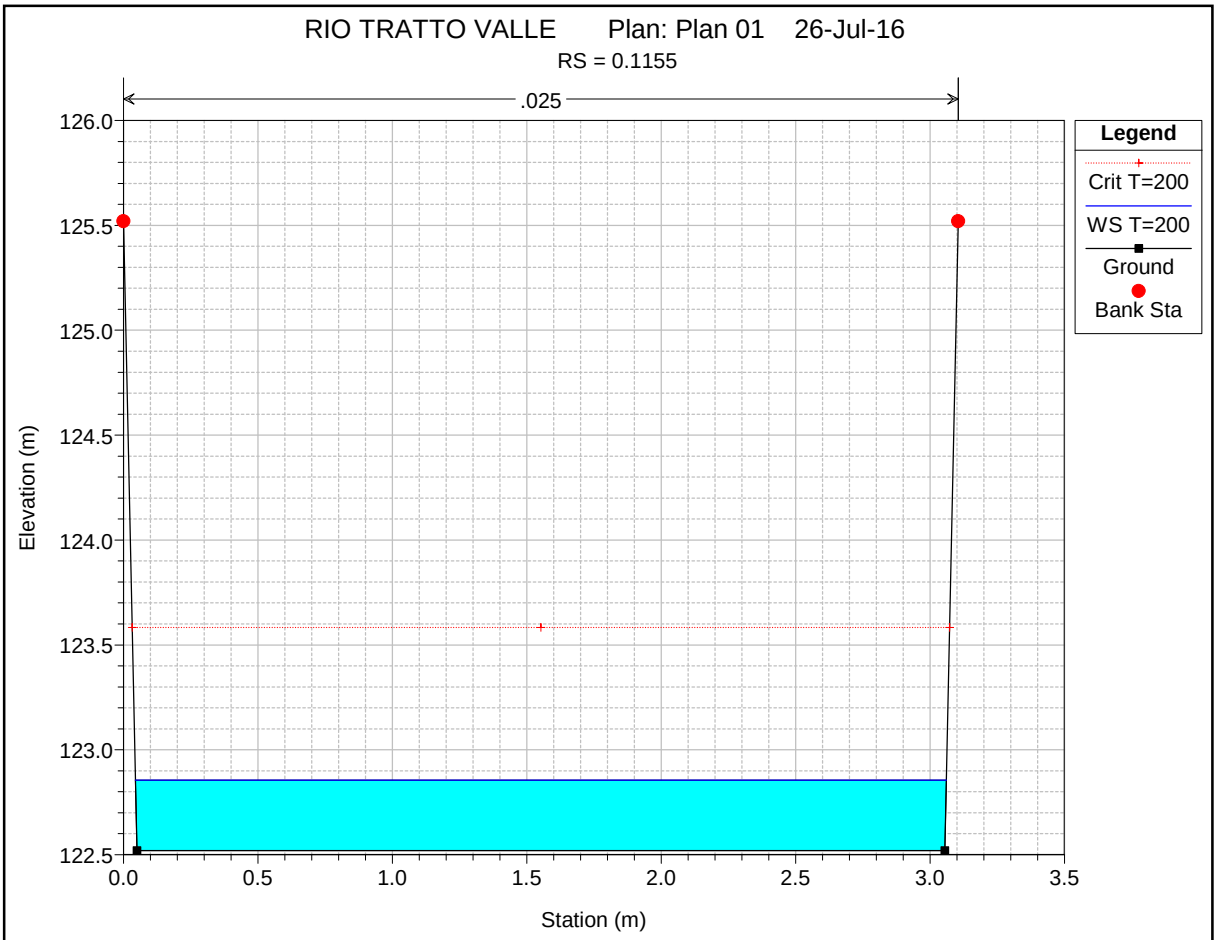

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1244
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
130.5
130.0
129.5
129.0
128.5
128.0
127.5
127.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

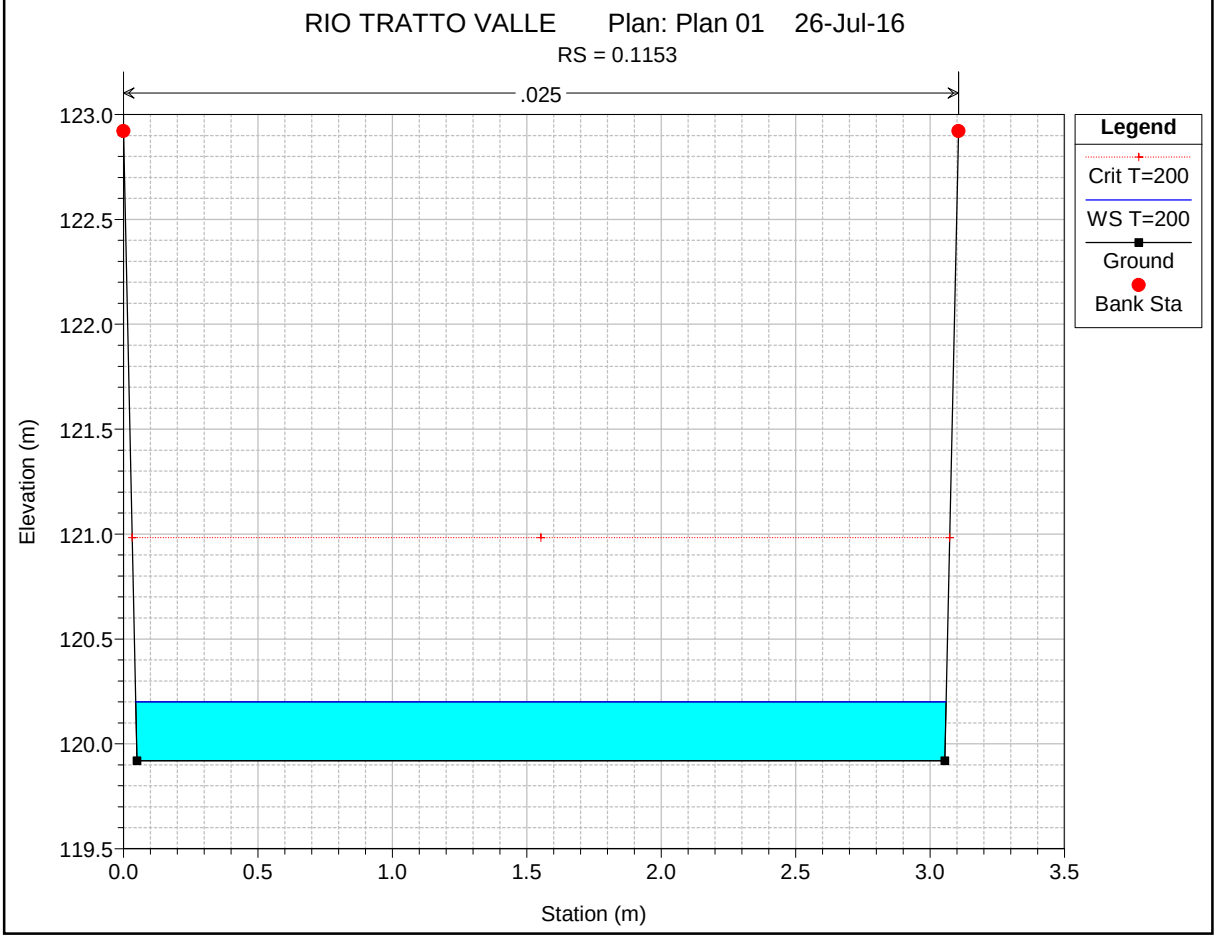

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1215
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
130.0
129.5
129.0
128.5
128.0
127.5
127.0
126.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

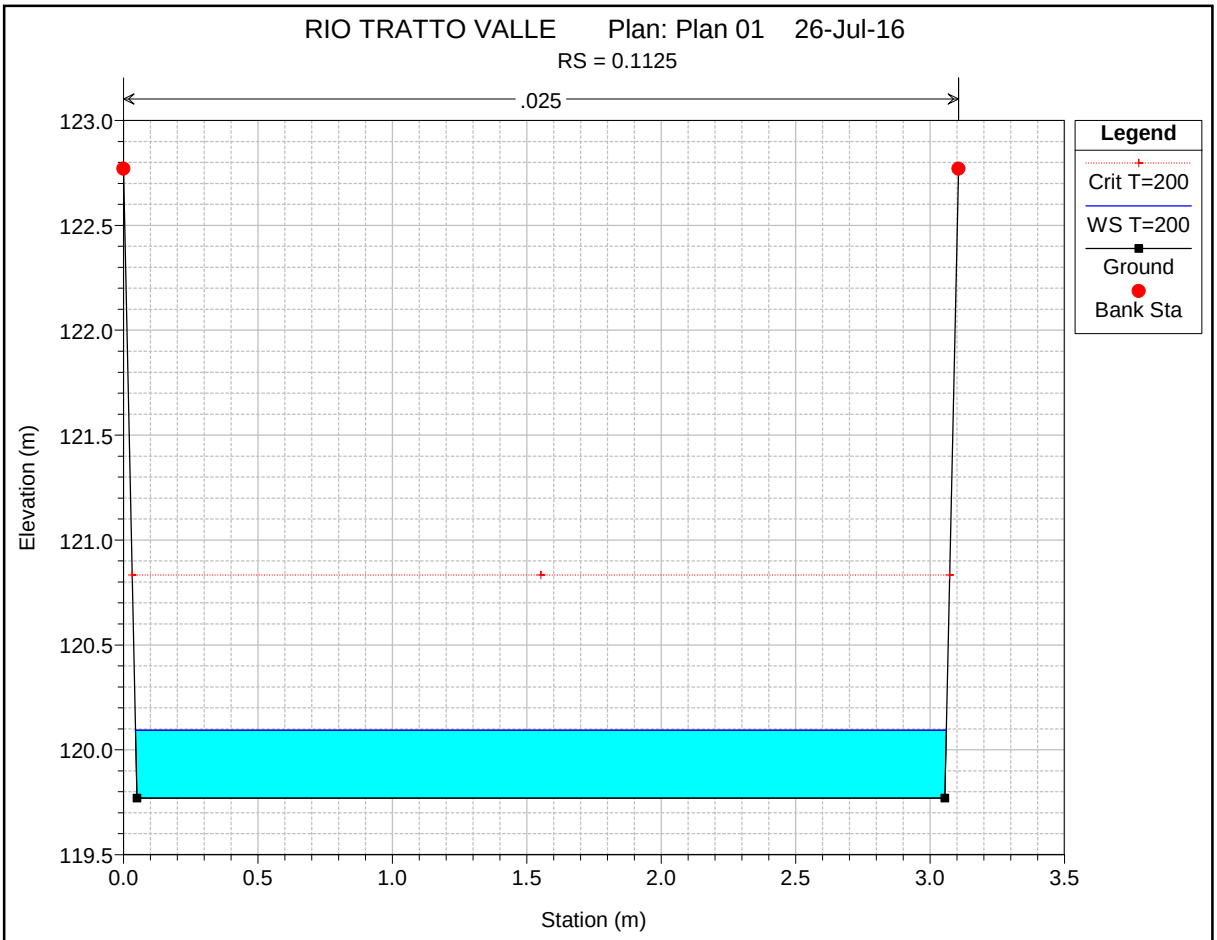

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1213
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
127.5
127.0
126.5
126.0
125.5
125.0
124.5
124.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

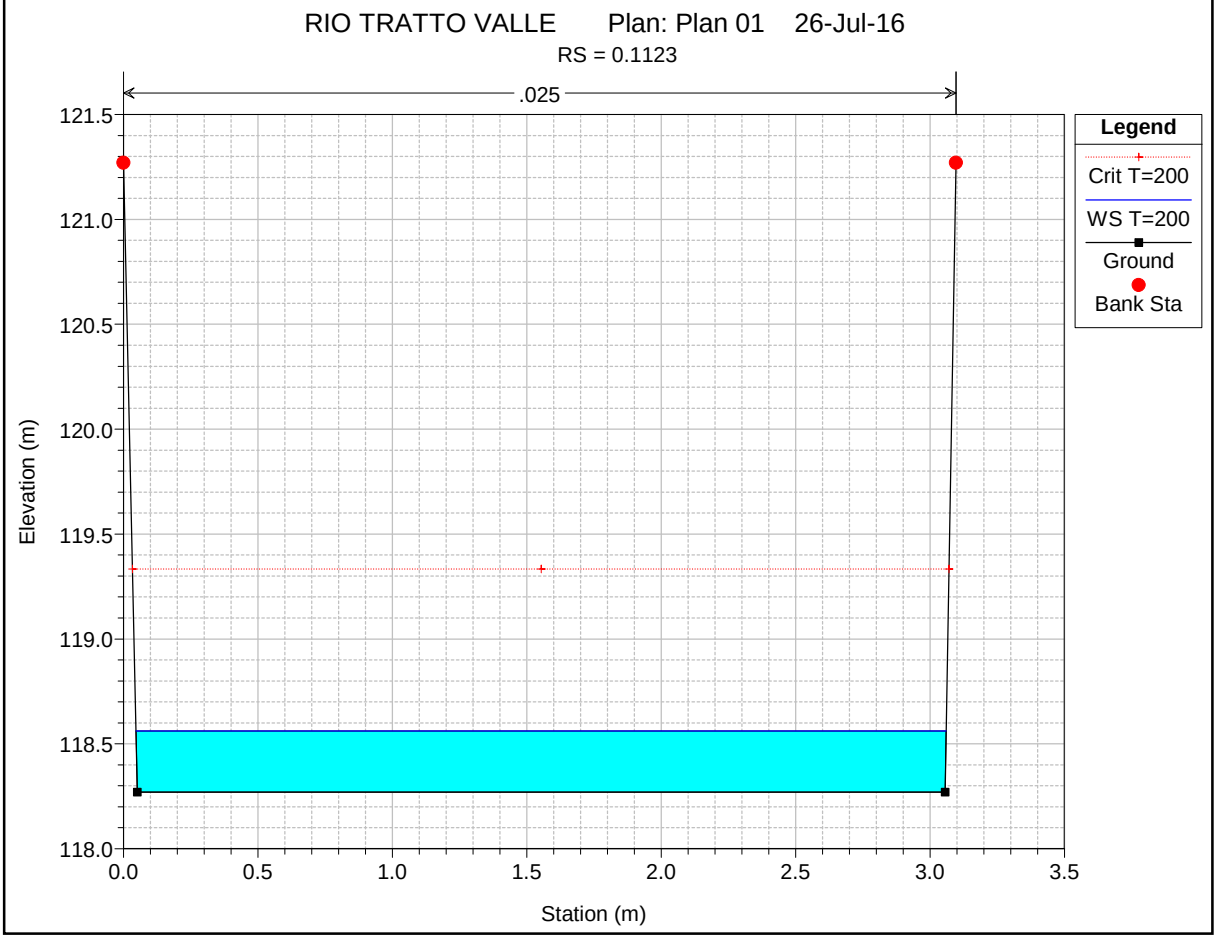

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1185
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
127.5
127.0
126.5
126.0
125.5
125.0
124.5
124.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

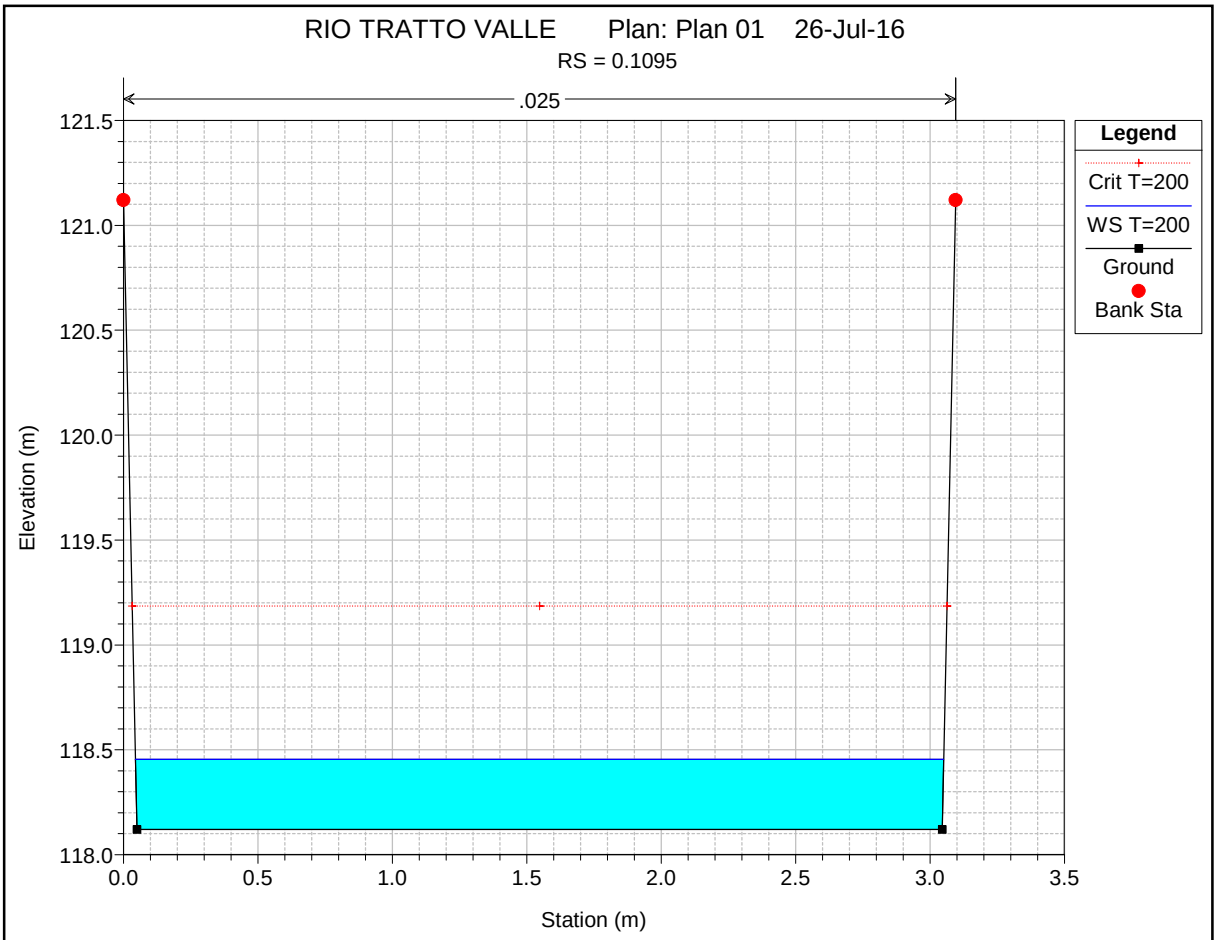

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1184
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
126.0
125.5
125.0
124.5
124.0
123.5
123.0
122.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

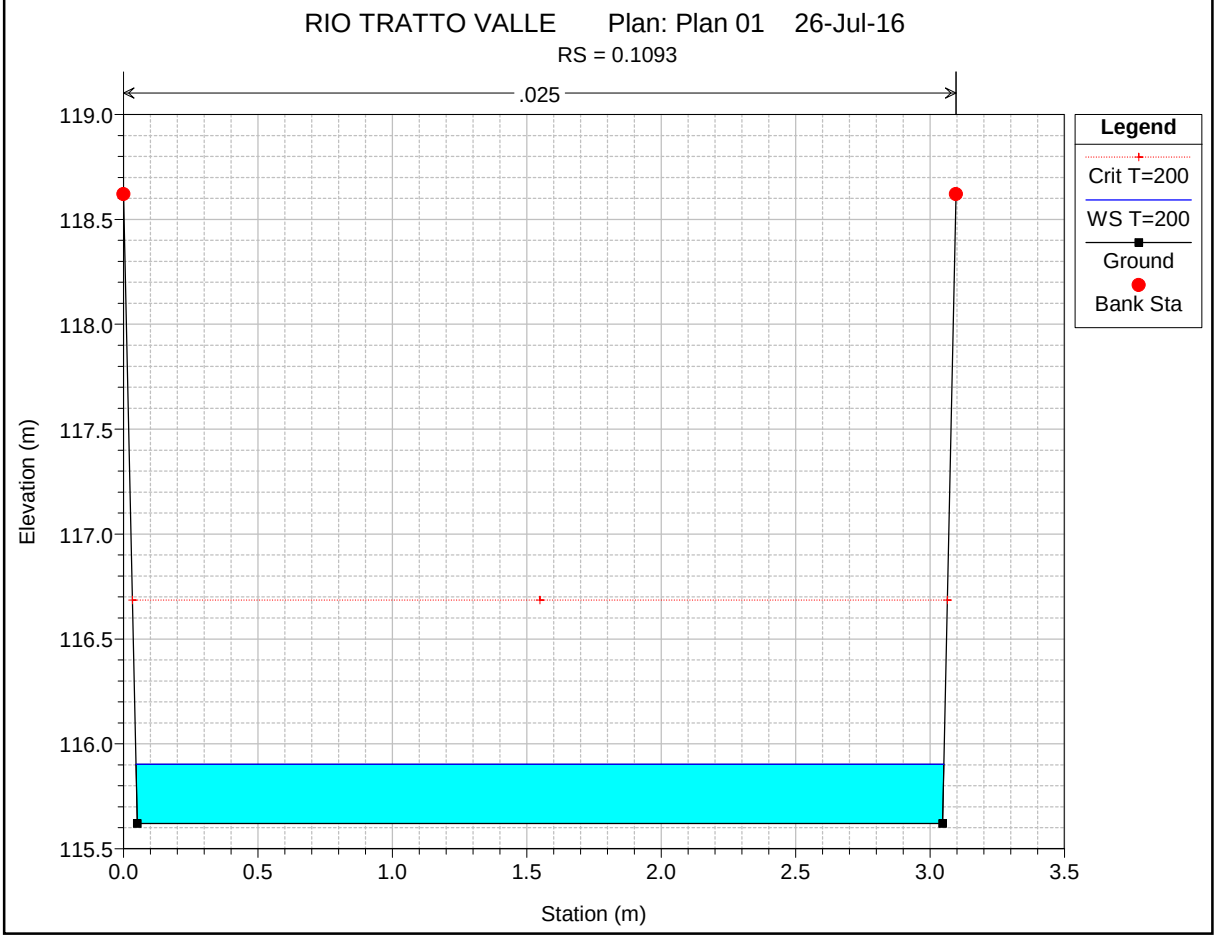

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1155
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
126.0
125.5
125.0
124.5
124.0
123.5
123.0
122.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

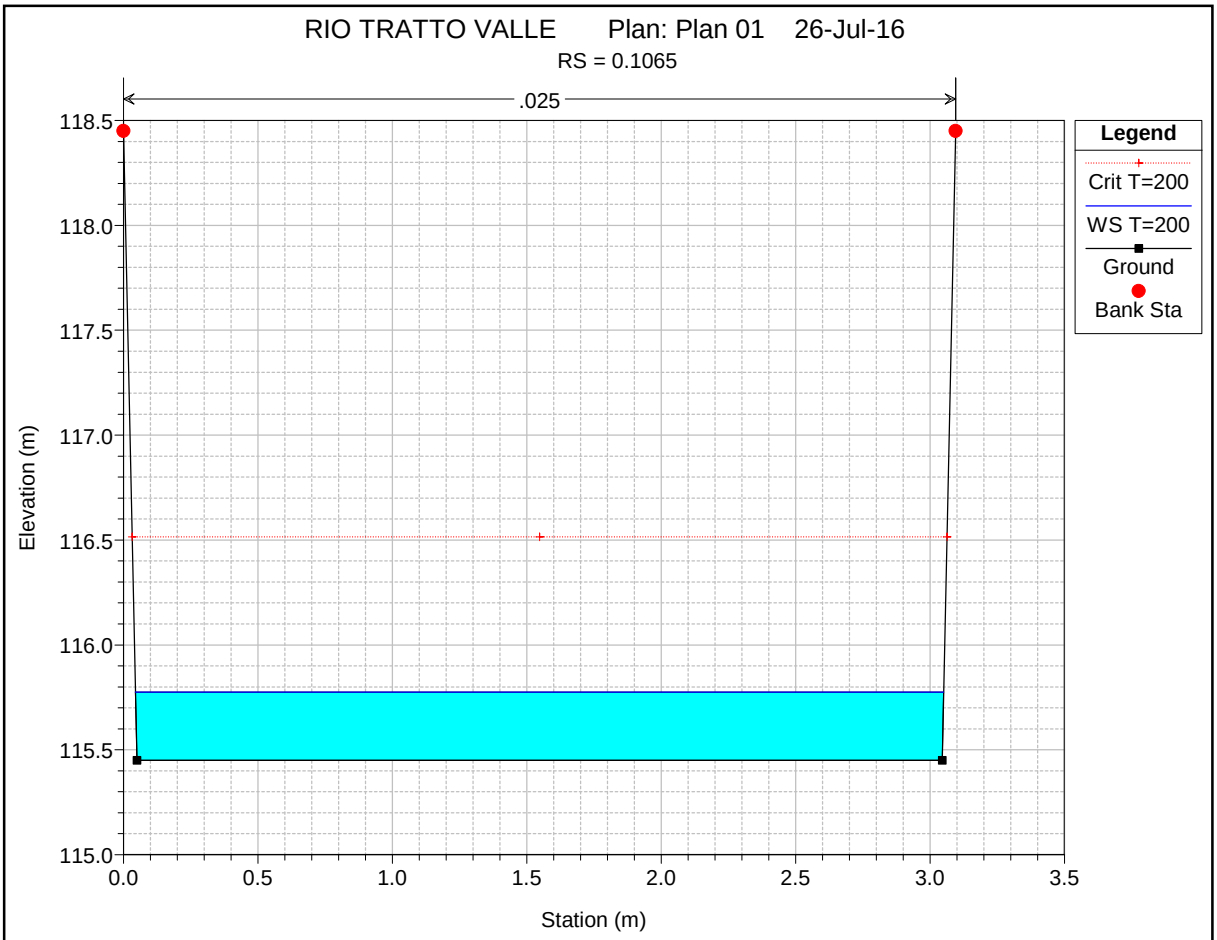

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1153
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
123.0
122.5
122.0
121.5
121.0
120.5
120.0
119.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

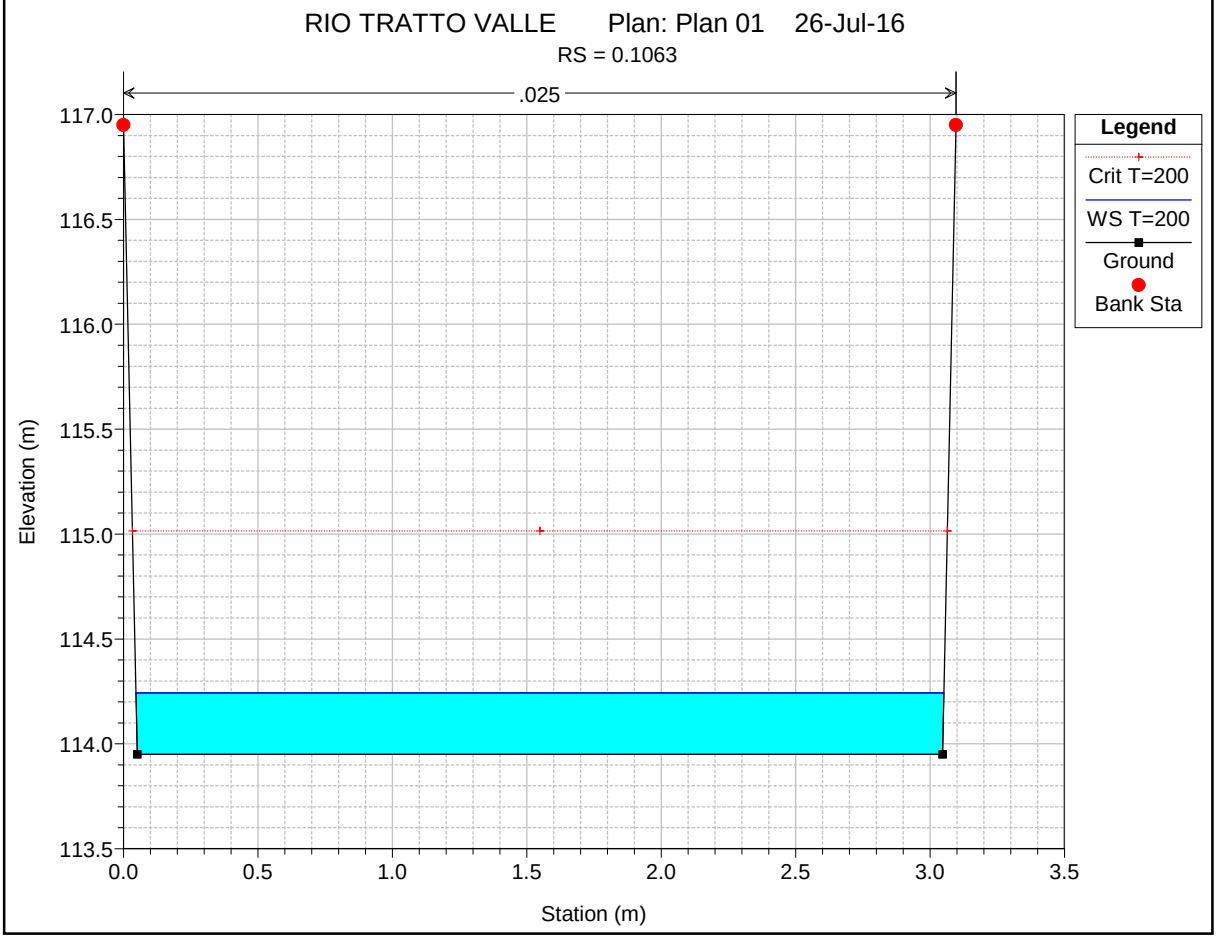

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1125
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
123.0
122.5
122.0
121.5
121.0
120.5
120.0
119.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

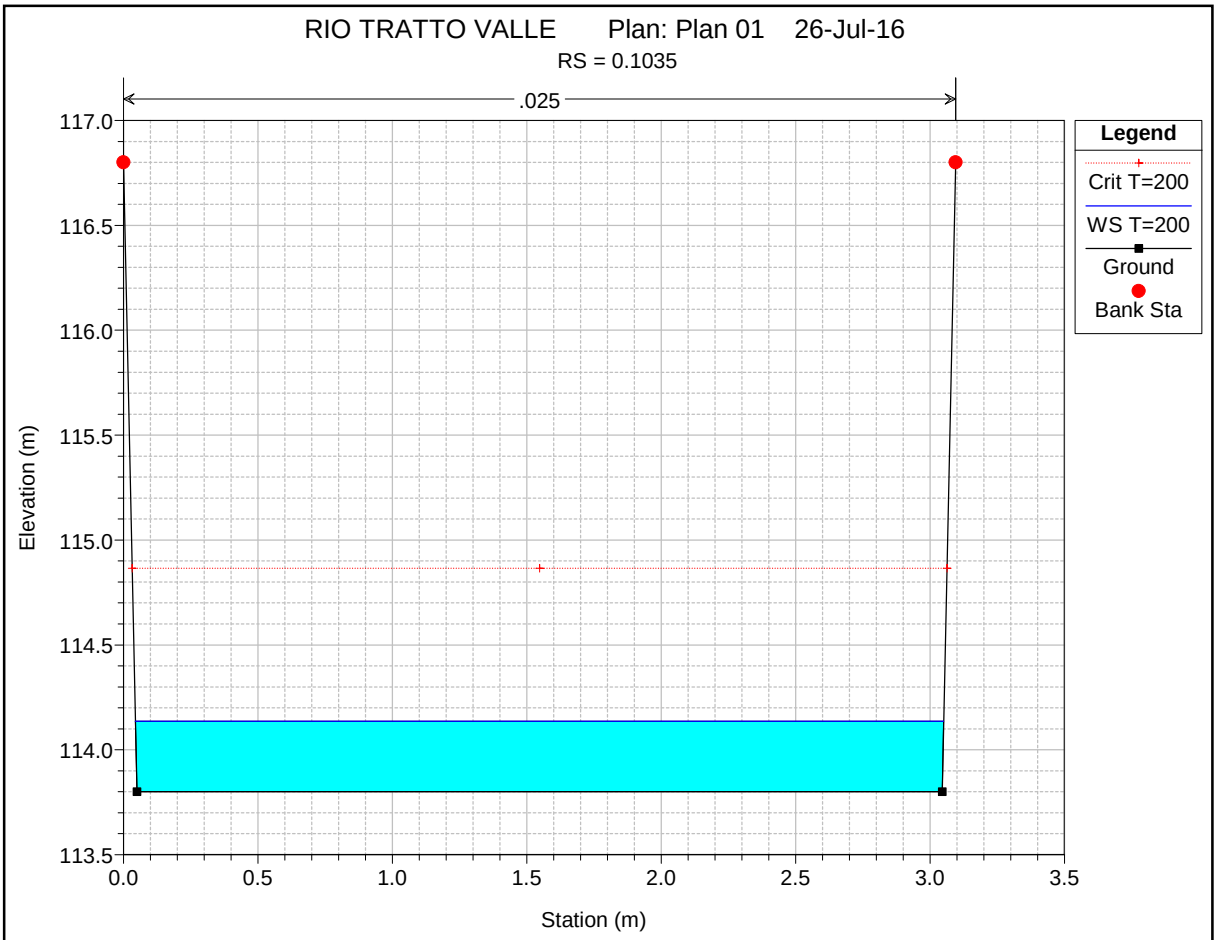

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1123
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
121.5
121.0
120.5
120.0
119.5
119.0
118.5
118.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

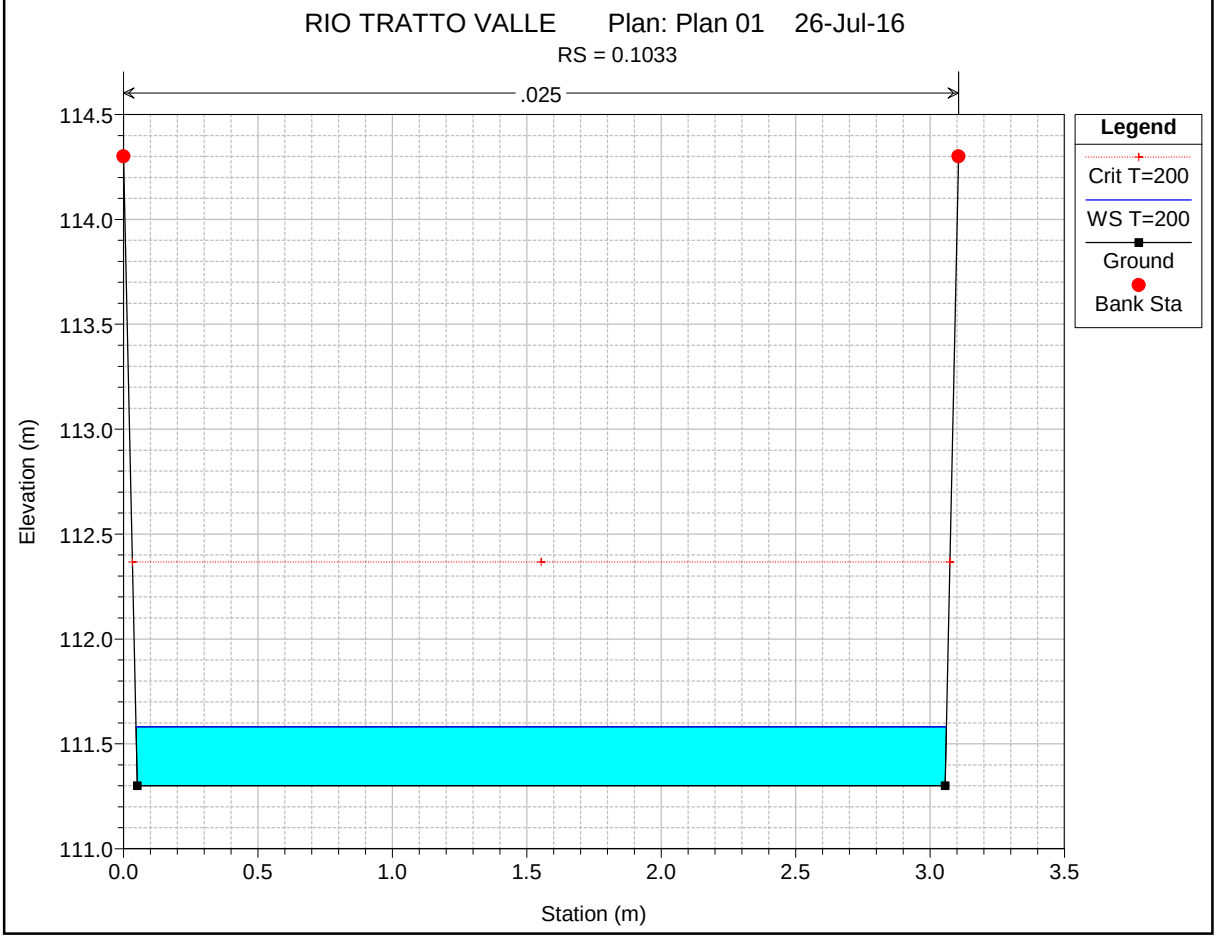

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1095
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
121.5
121.0
120.5
120.0
119.5
119.0
118.5
118.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

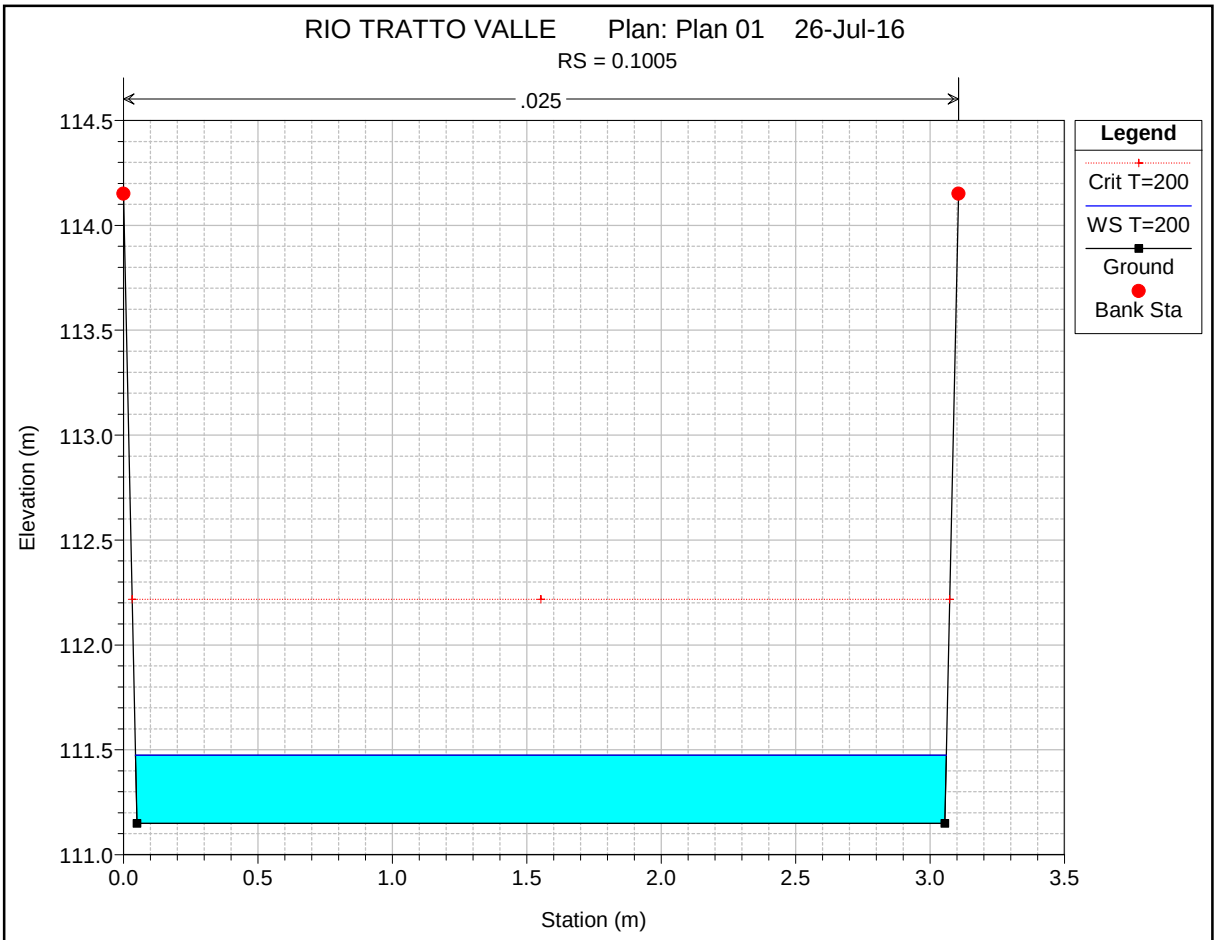

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1093
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
119.0
118.5
118.0
117.5
117.0
116.5
116.0
115.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

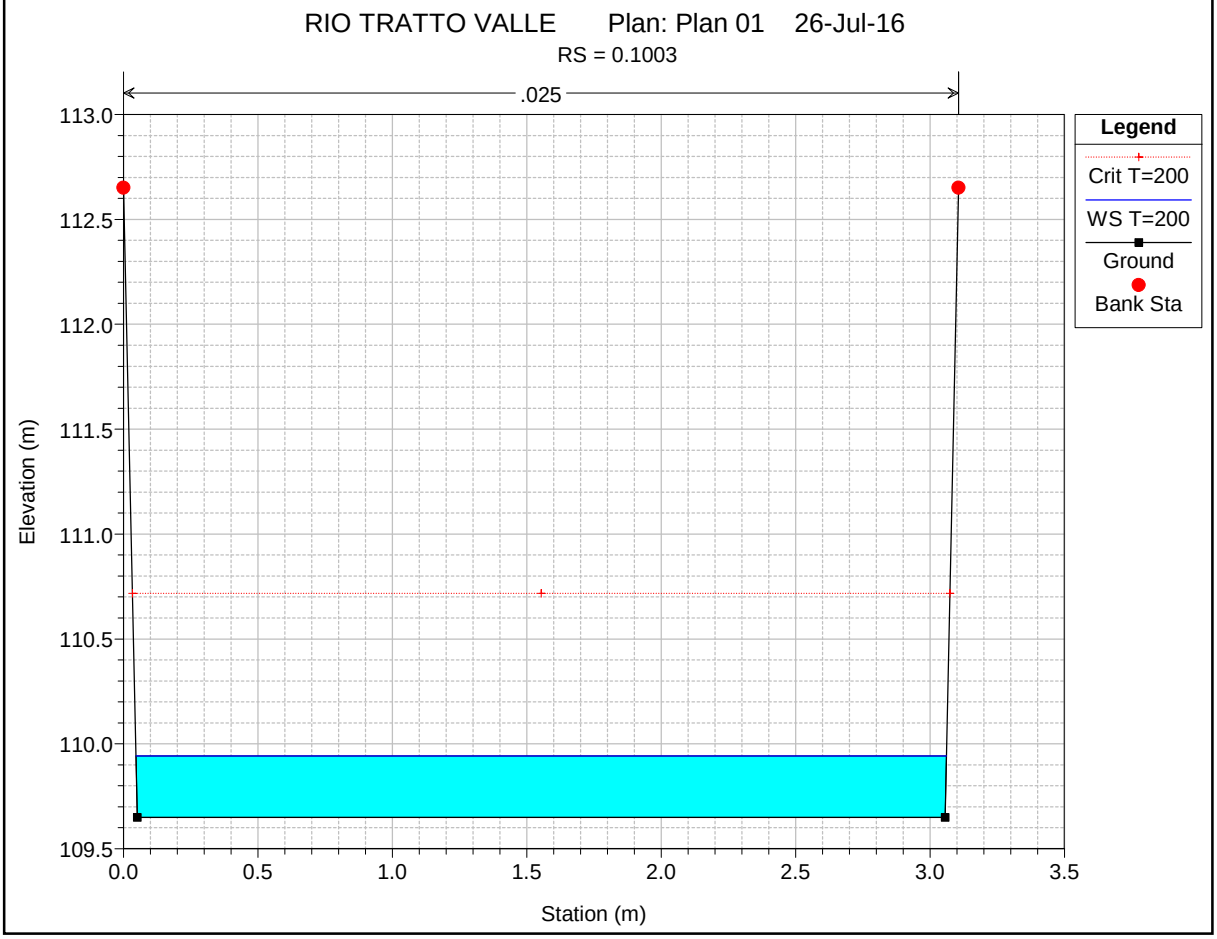

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1065
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
118.5
118.0
117.5
117.0
116.5
116.0
115.5
115.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

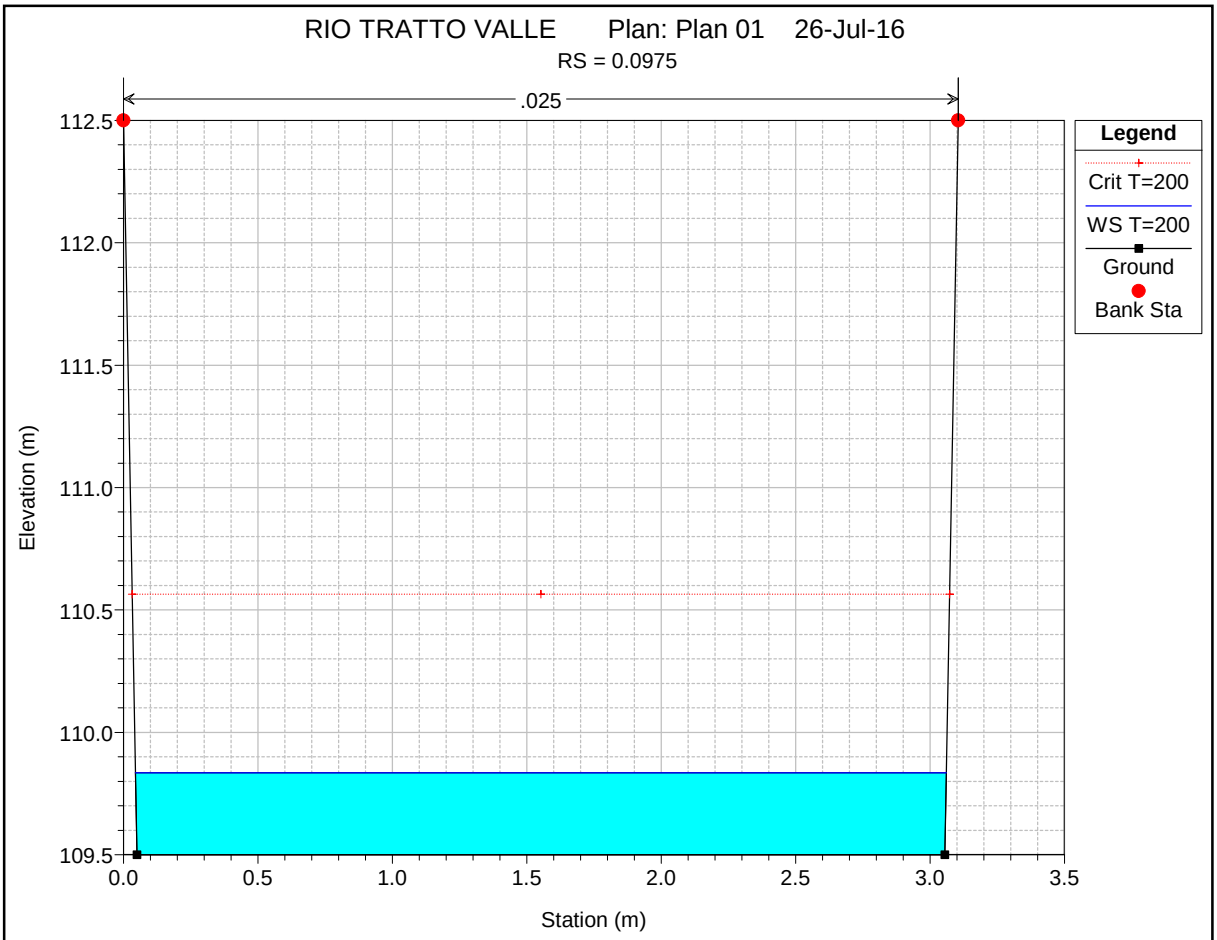

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1063
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
117.0
116.5
116.0
115.5
115.0
114.5
114.0
113.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

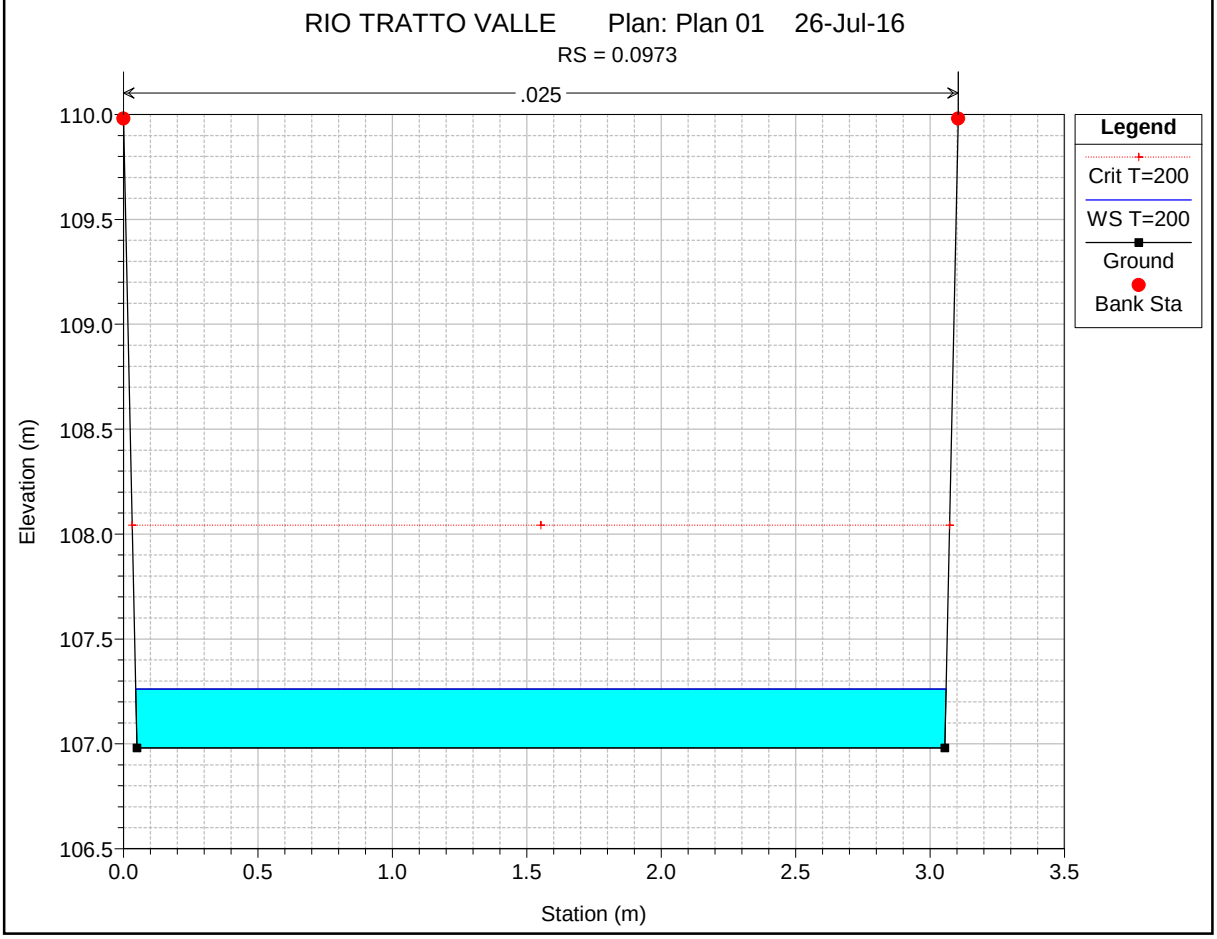

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1035
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
117.0
116.5
116.0
115.5
115.0
114.5
114.0
113.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

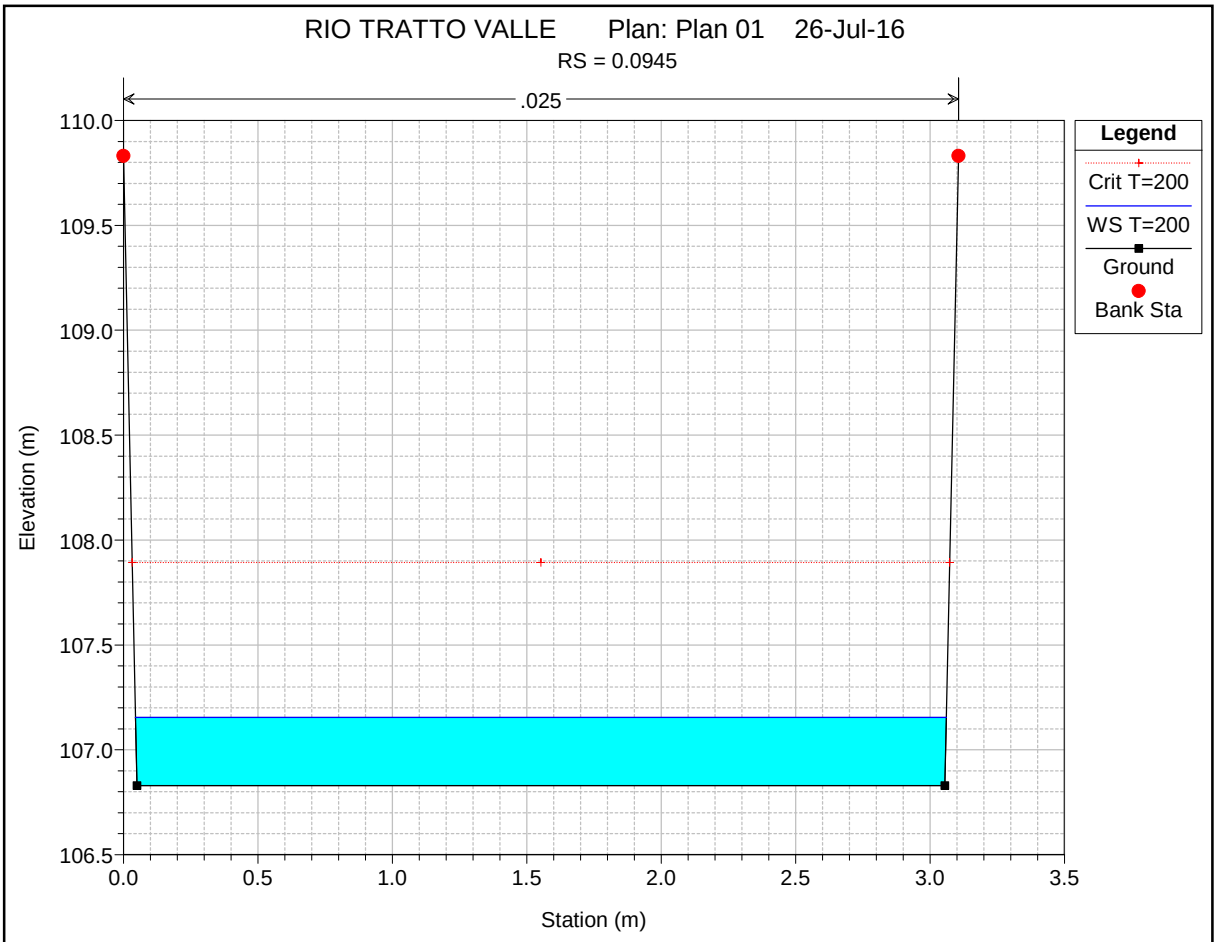

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1033
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
114.5
114.0
113.5
113.0
112.5
112.0
111.5
111.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

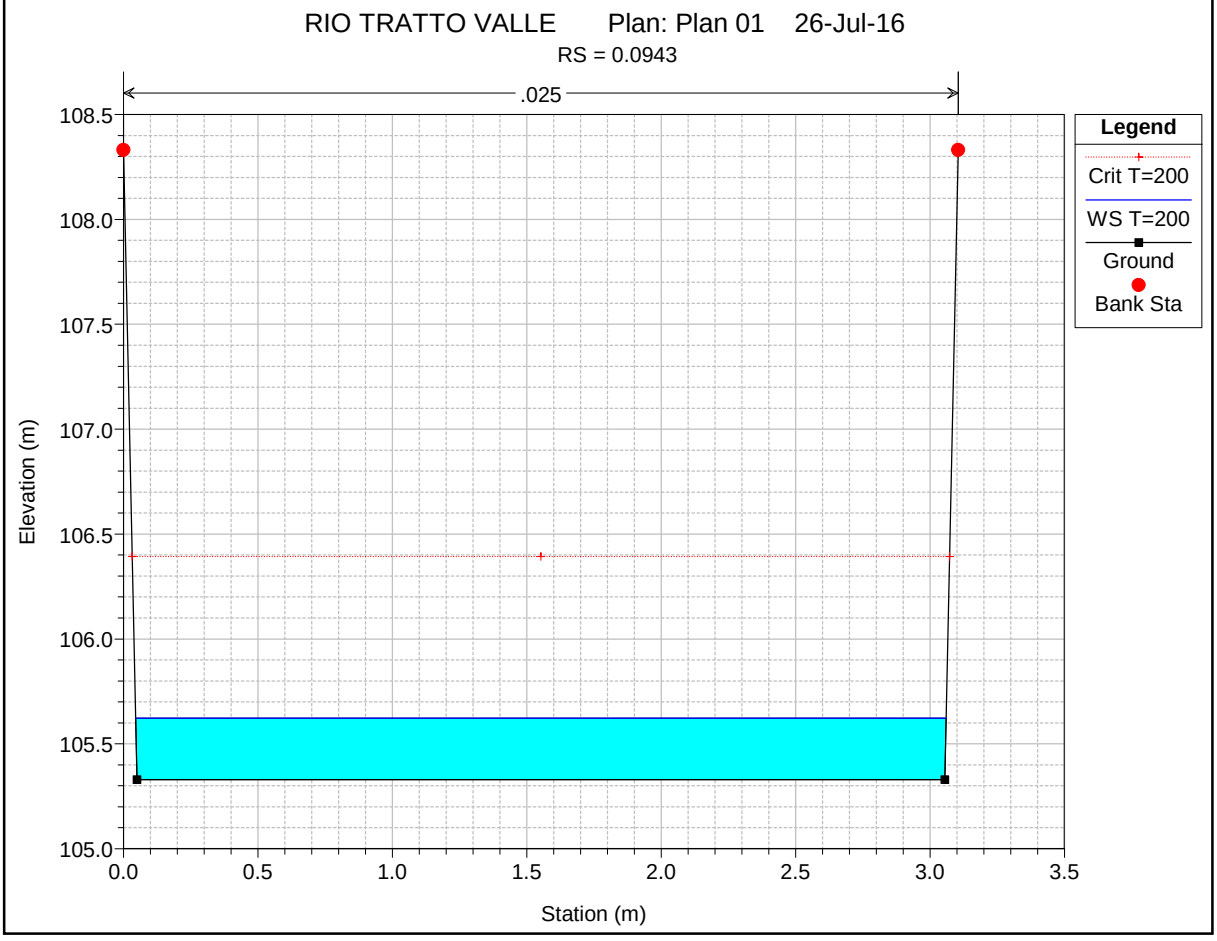

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1005
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
114.5
114.0
113.5
113.0
112.5
112.0
111.5
111.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

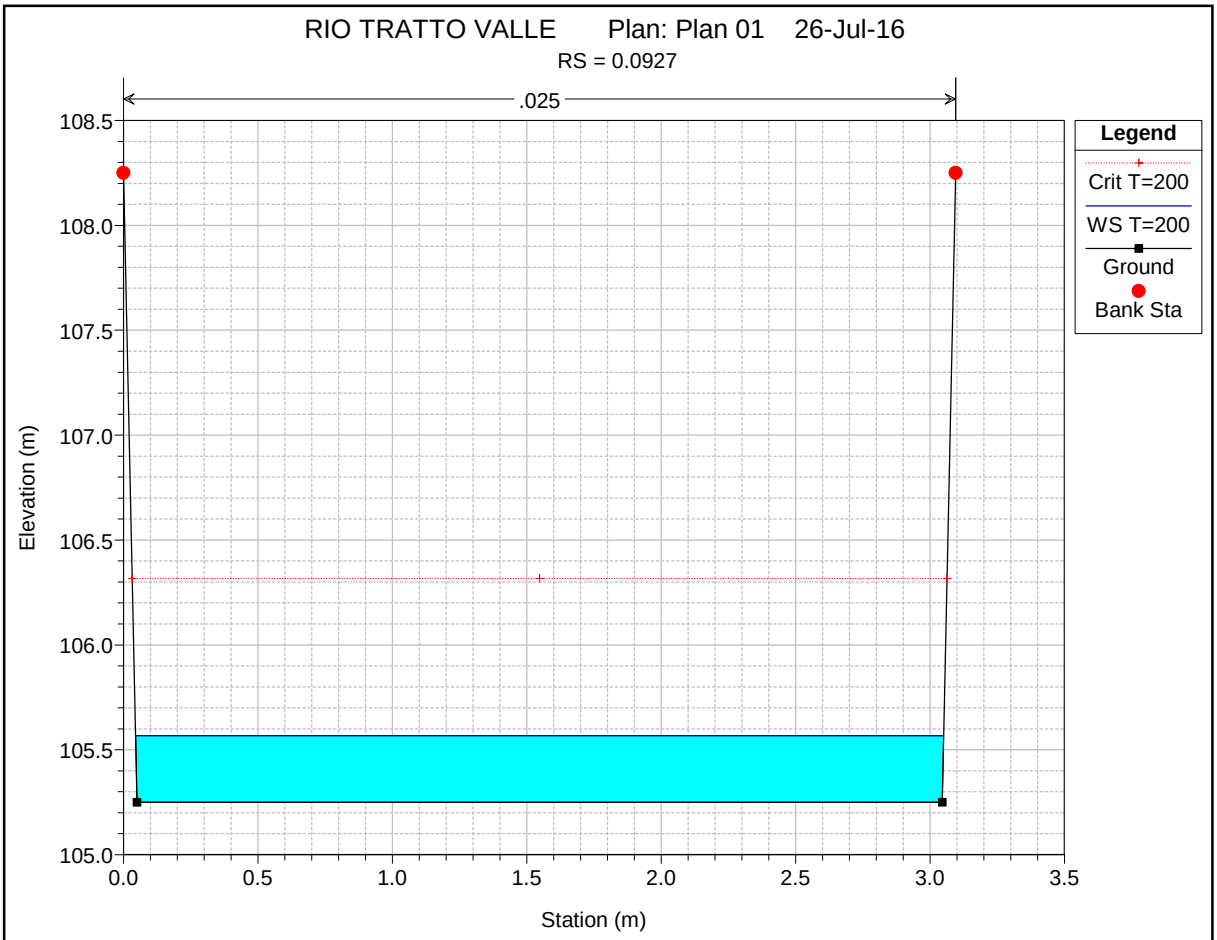

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.1003
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
113.0
112.5
112.0
111.5
111.0
110.5
110.0
109.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

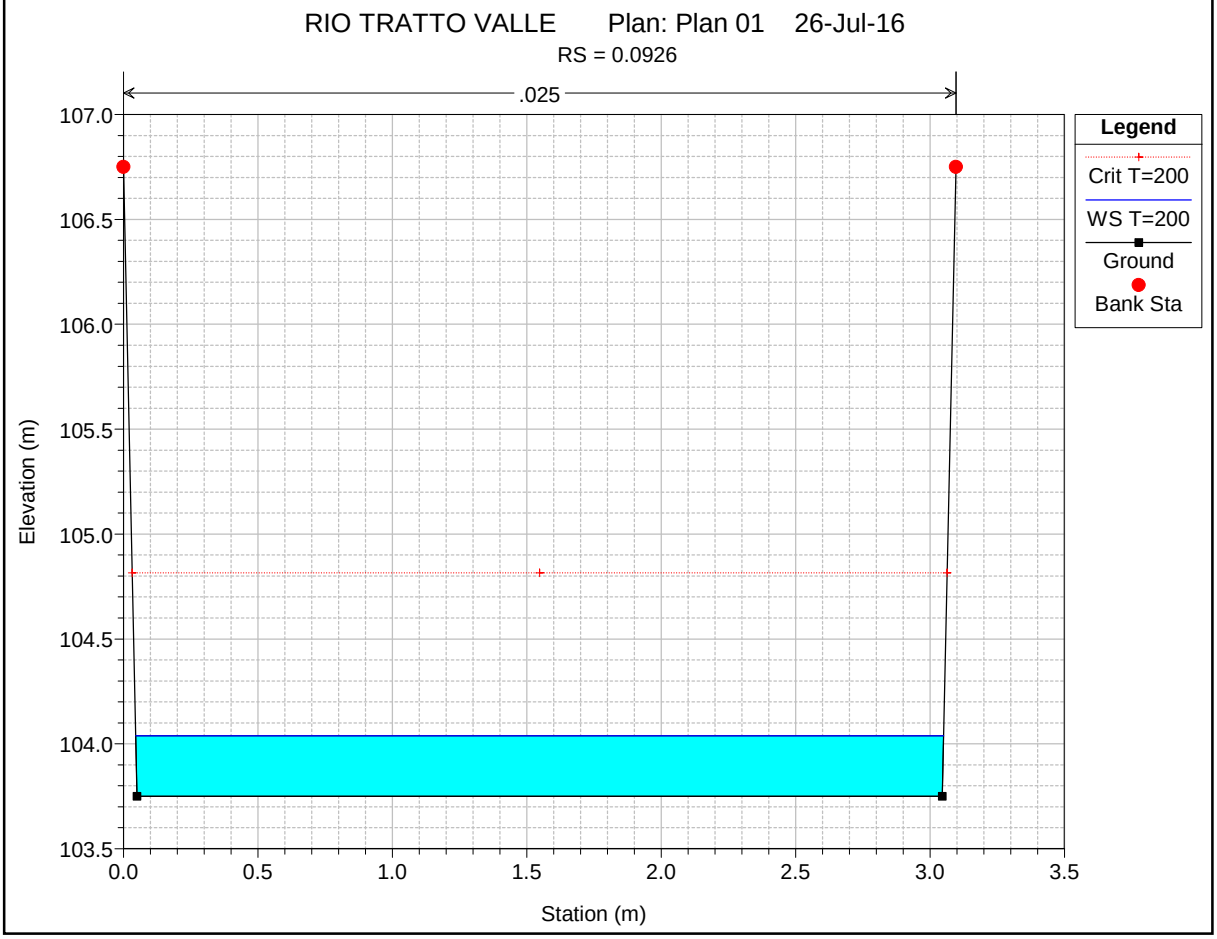

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0975
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
112.5
112.0
111.5
111.0
110.5
110.0
109.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

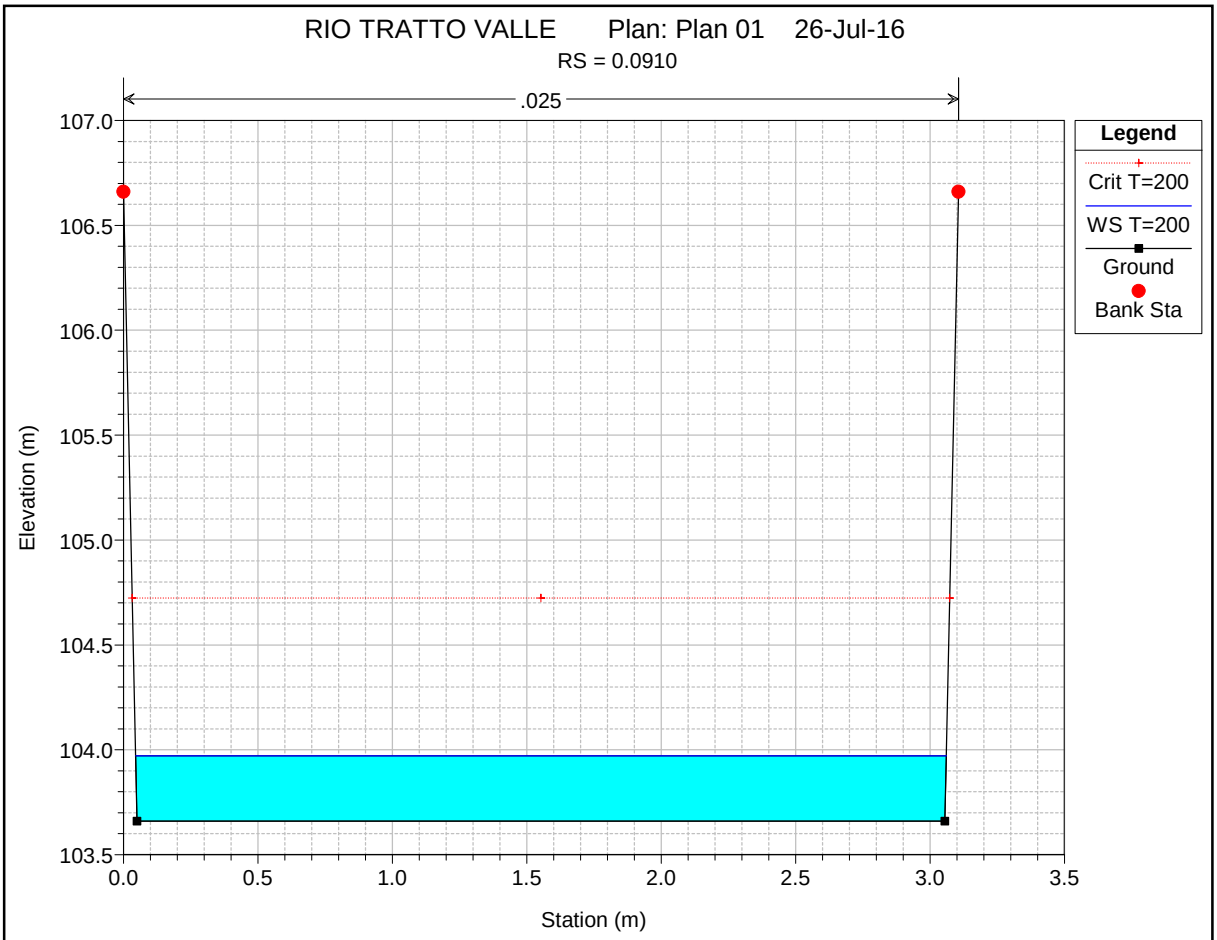

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0973
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
110.0
109.5
109.0
108.5
108.0
107.5
107.0
106.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

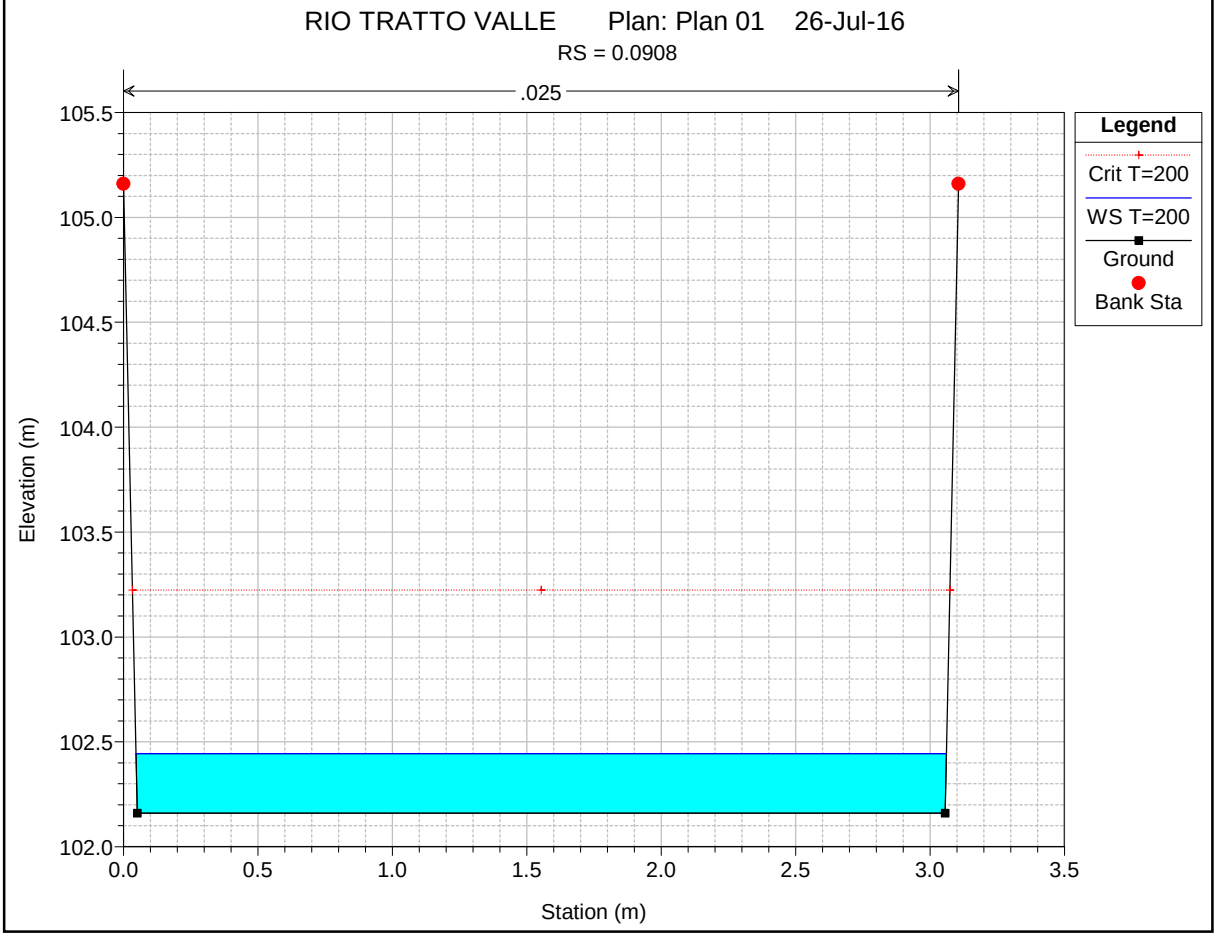

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0945
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
110.0
109.5
109.0
108.5
108.0
107.5
107.0
106.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

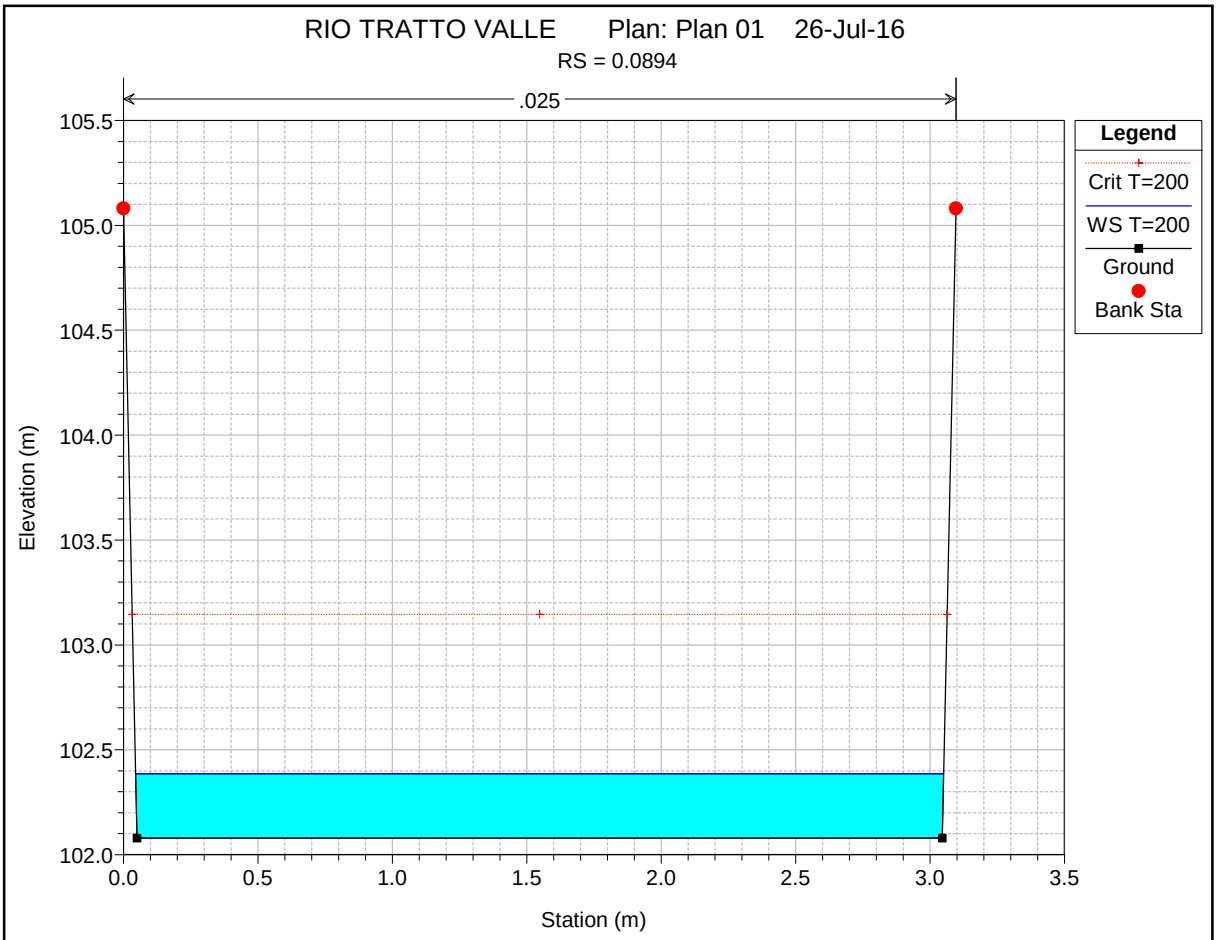

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0943
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
108.5
108.0
107.5
107.0
106.5
106.0
105.5
105.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

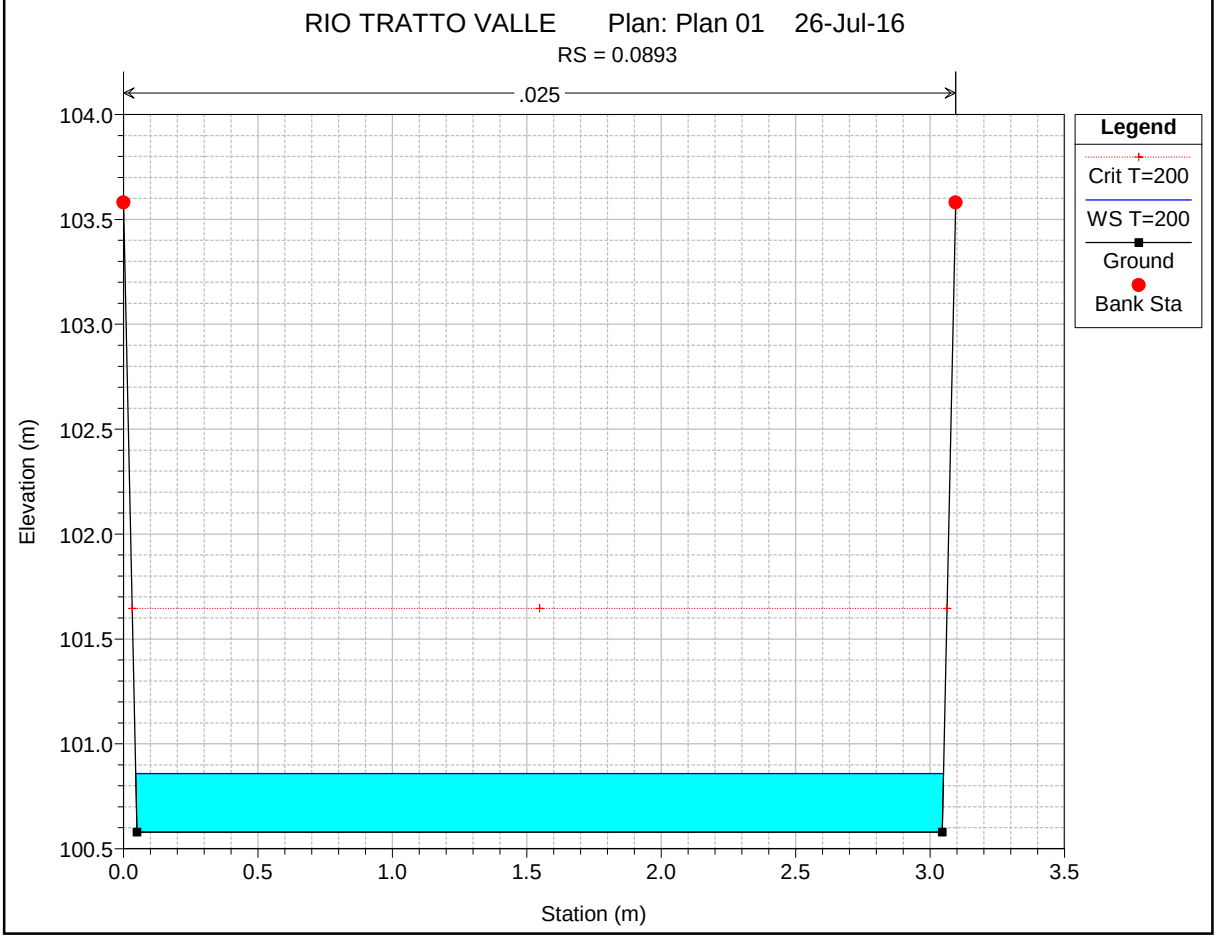

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0927
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
108.5
108.0
107.5
107.0
106.5
106.0
105.5
105.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

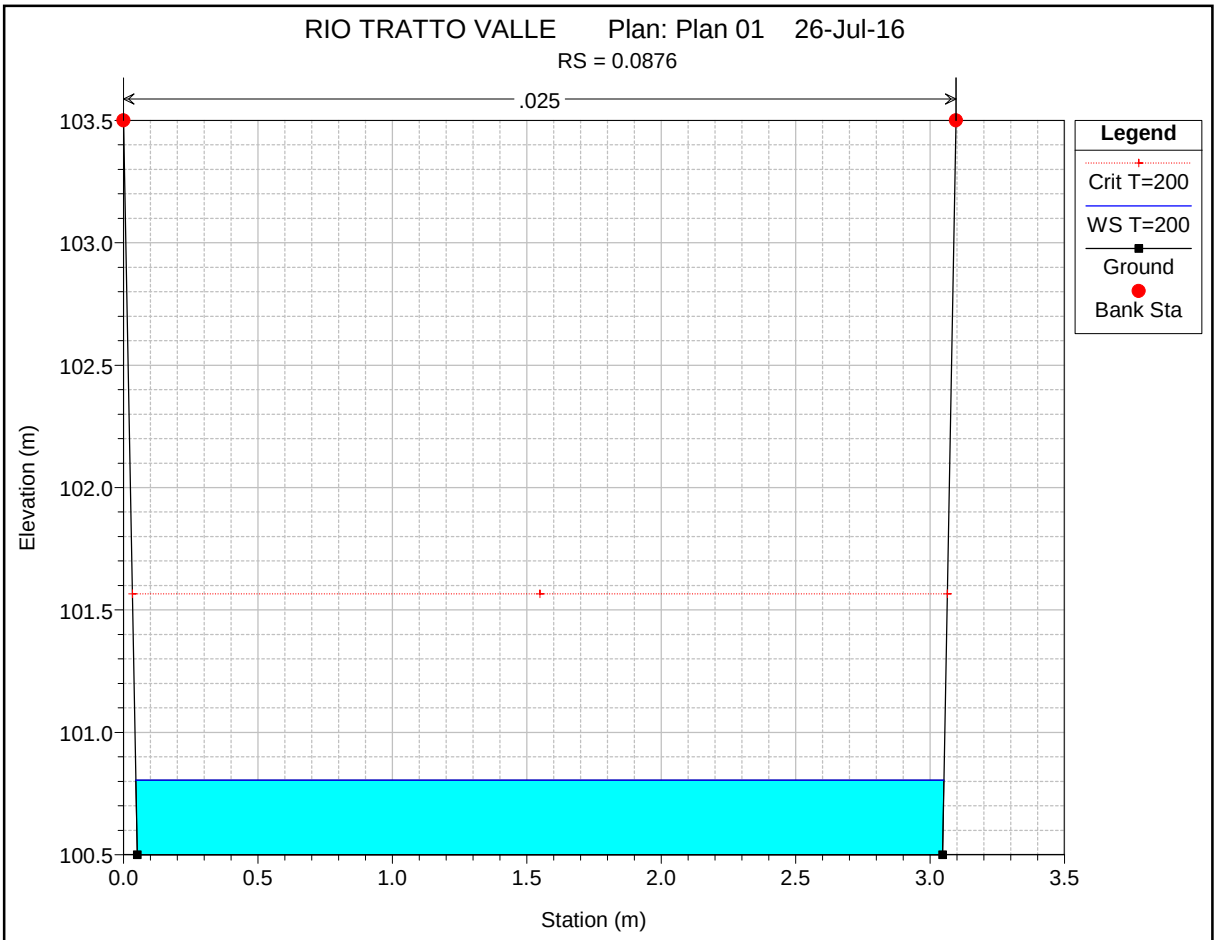

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0926
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
107.0
106.5
106.0
105.5
105.0
104.5
104.0
103.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

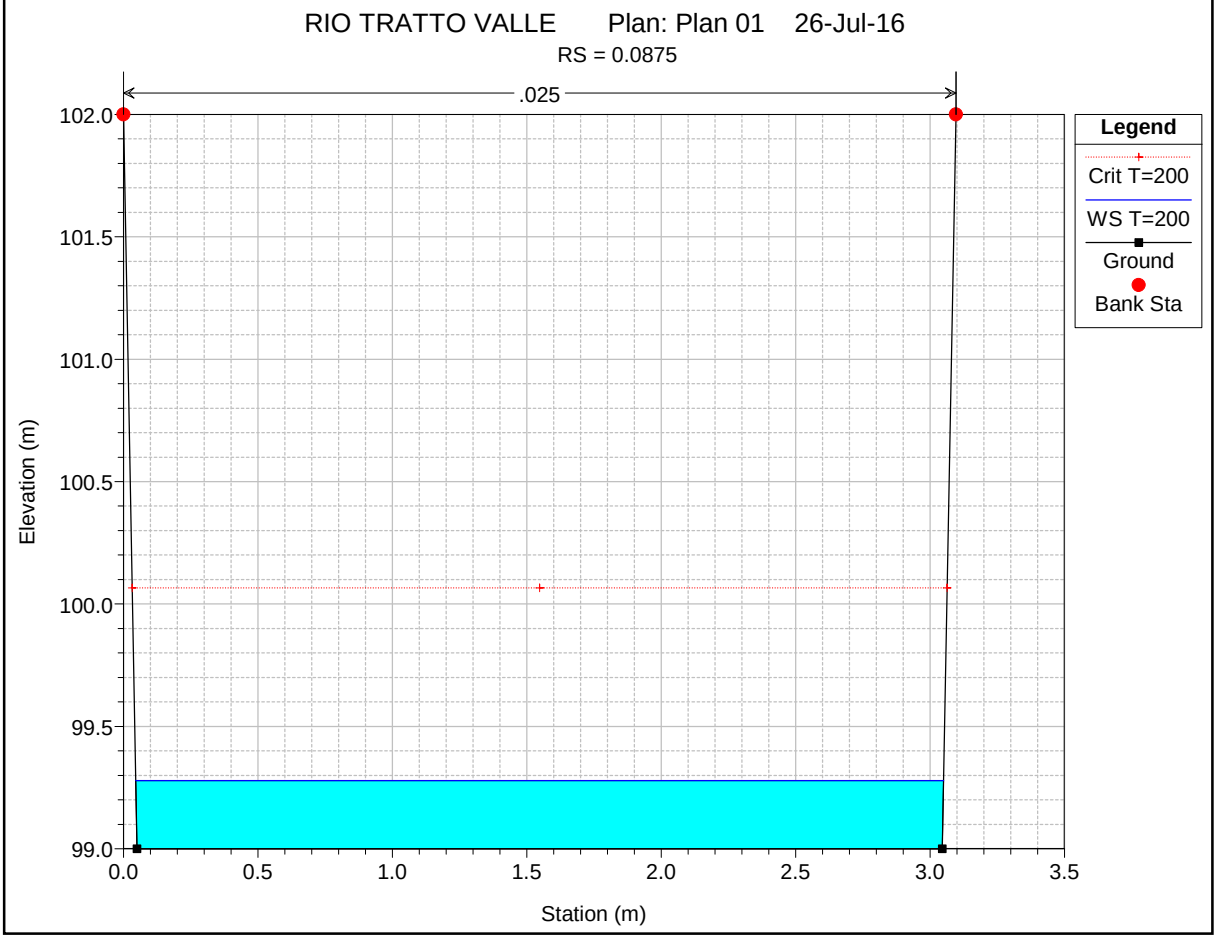

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0910
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
107.0
106.5
106.0
105.5
105.0
104.5
104.0
103.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

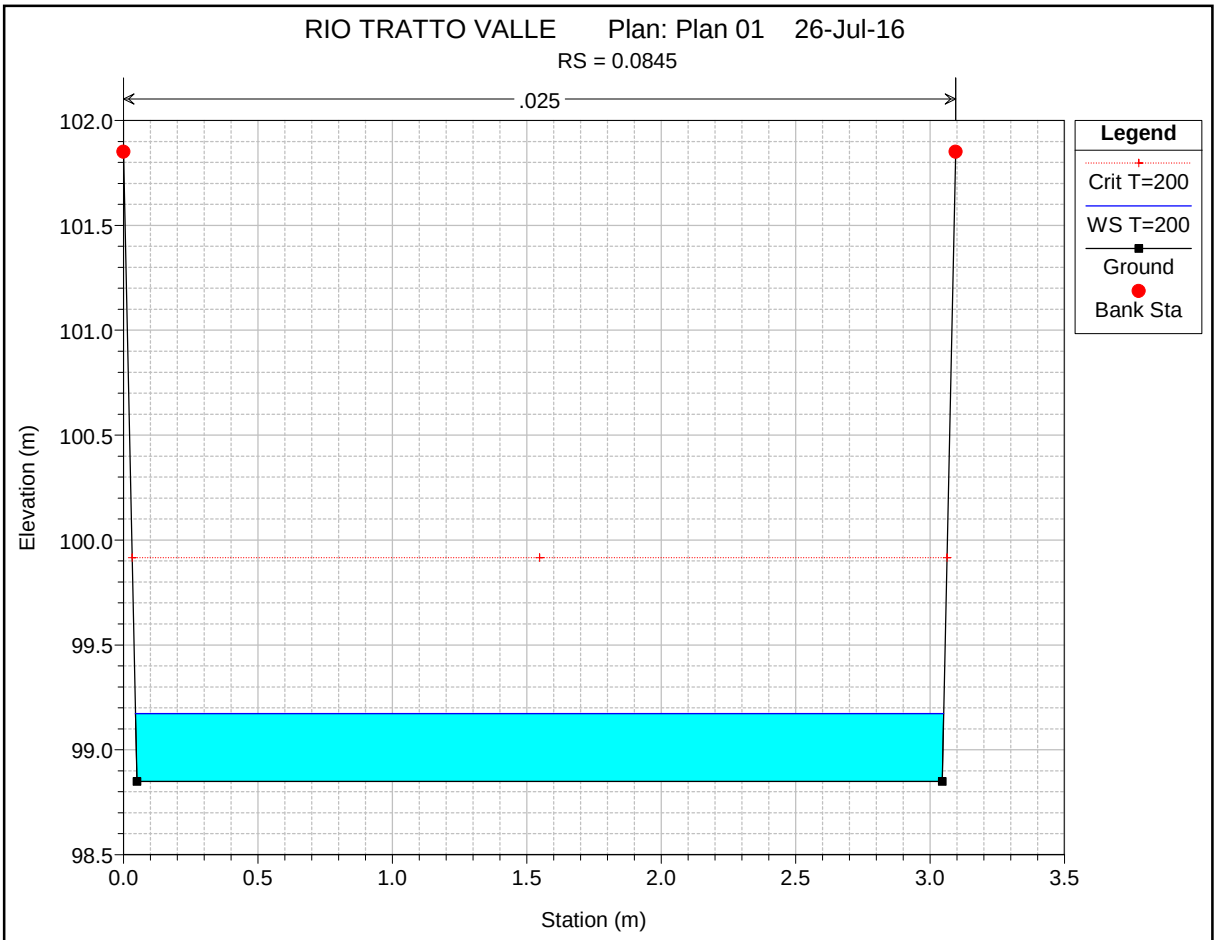

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0908
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
105.5
105.0
104.5
104.0
103.5
103.0
102.5
102.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

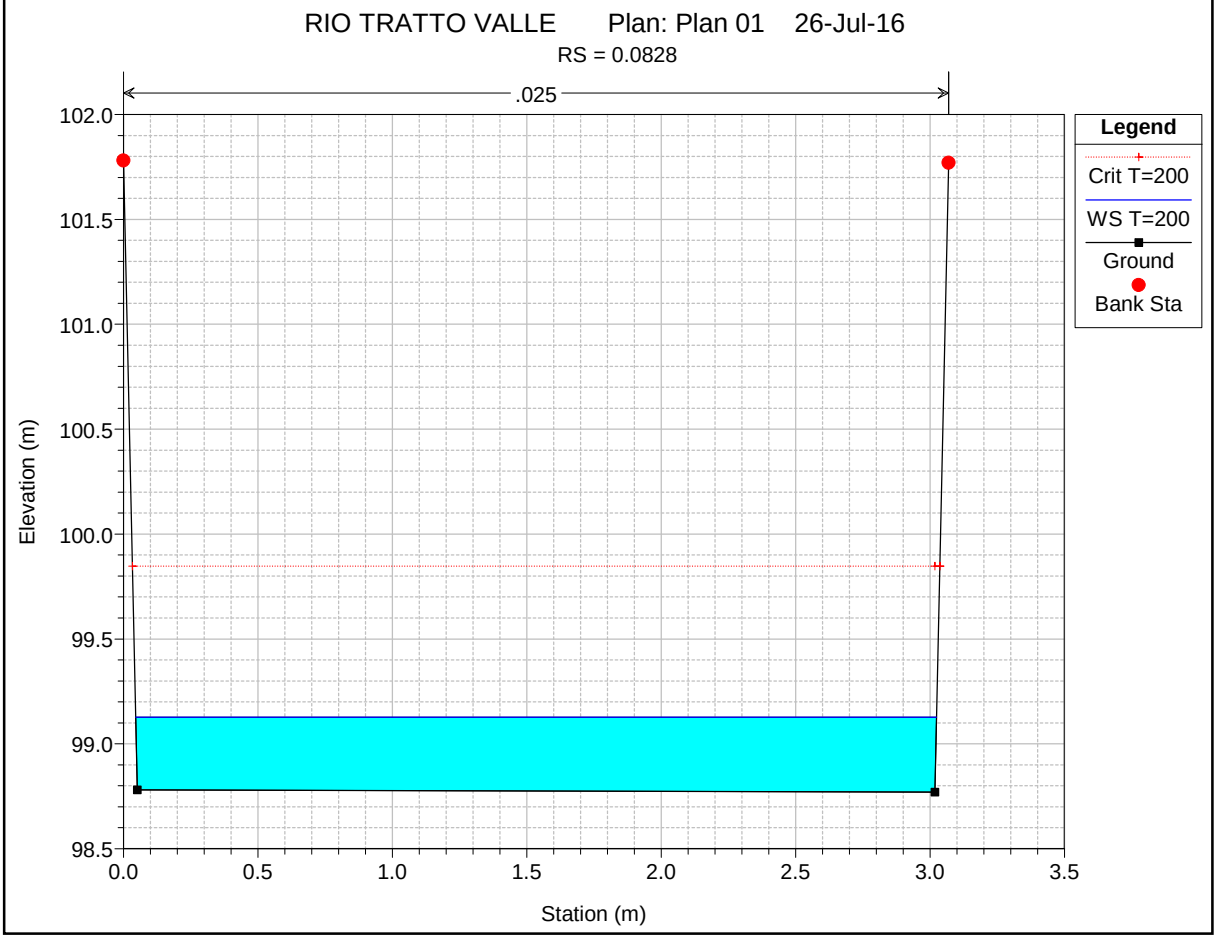

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0894
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
105.5
105.0
104.5
104.0
103.5
103.0
102.5
102.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

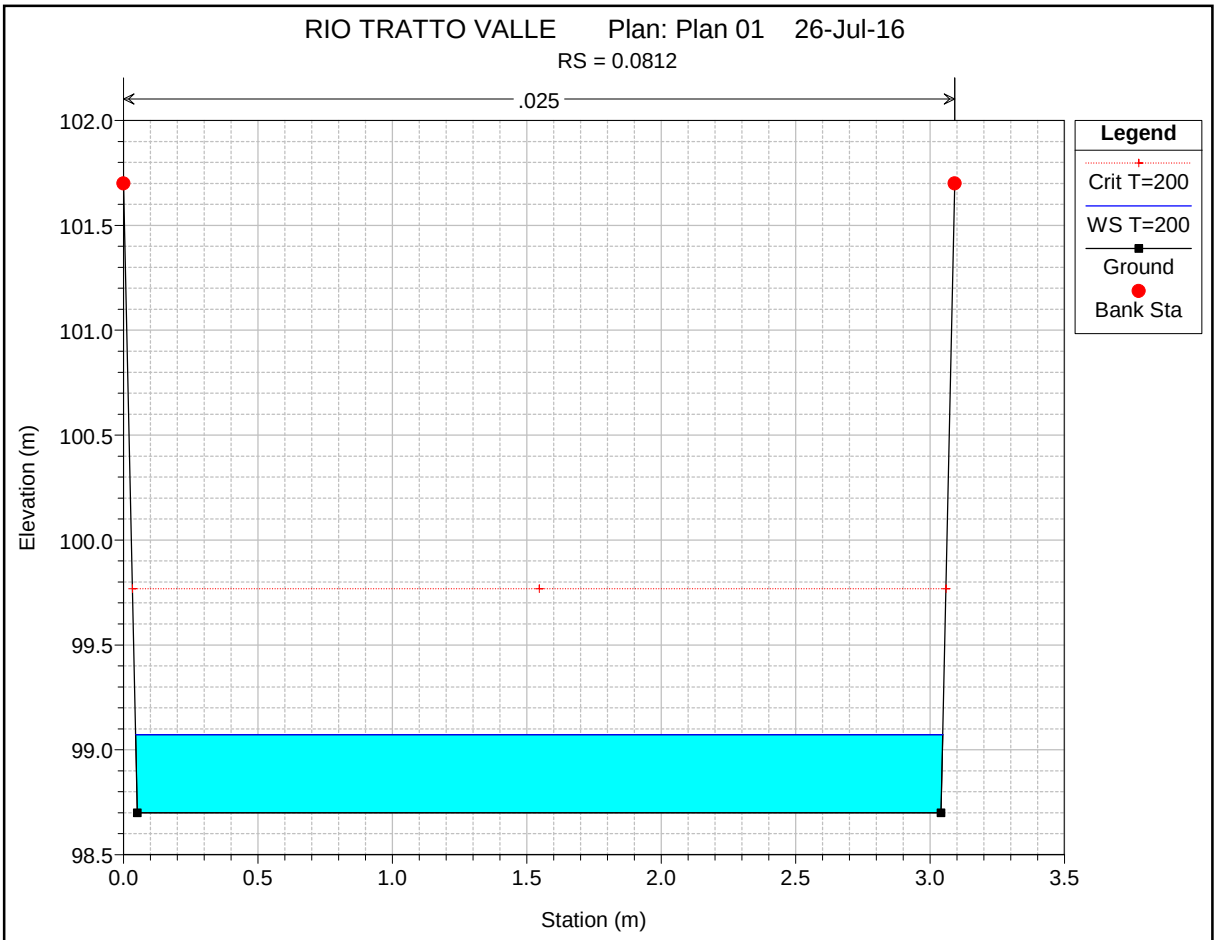

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0893
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
104.0
103.5
103.0
102.5
102.0
101.5
101.0
100.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

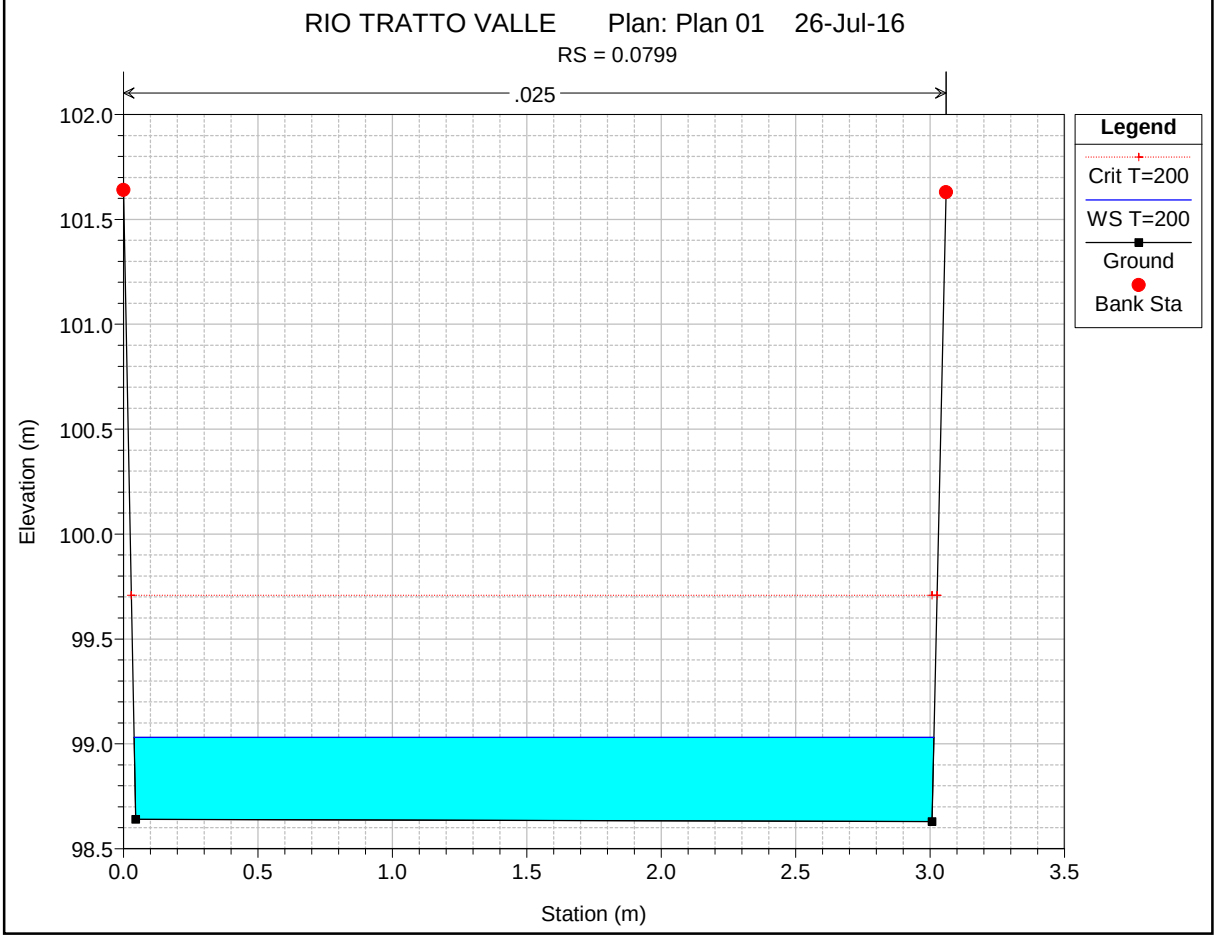

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0876
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
103.5
103.0
102.5
102.0
101.5
101.0
100.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

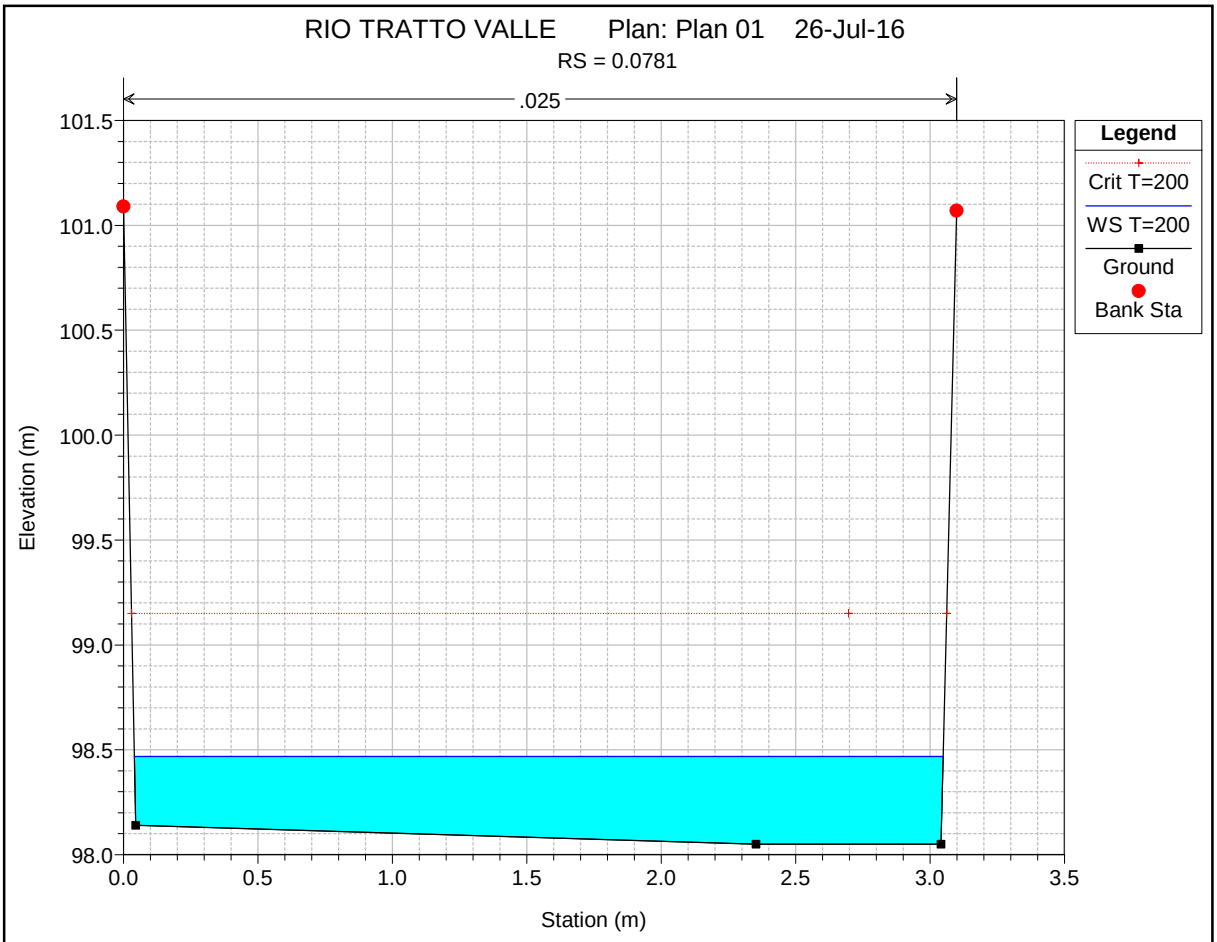

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0875
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
102.0
101.5
101.0
100.5
100.0
99.5
99.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

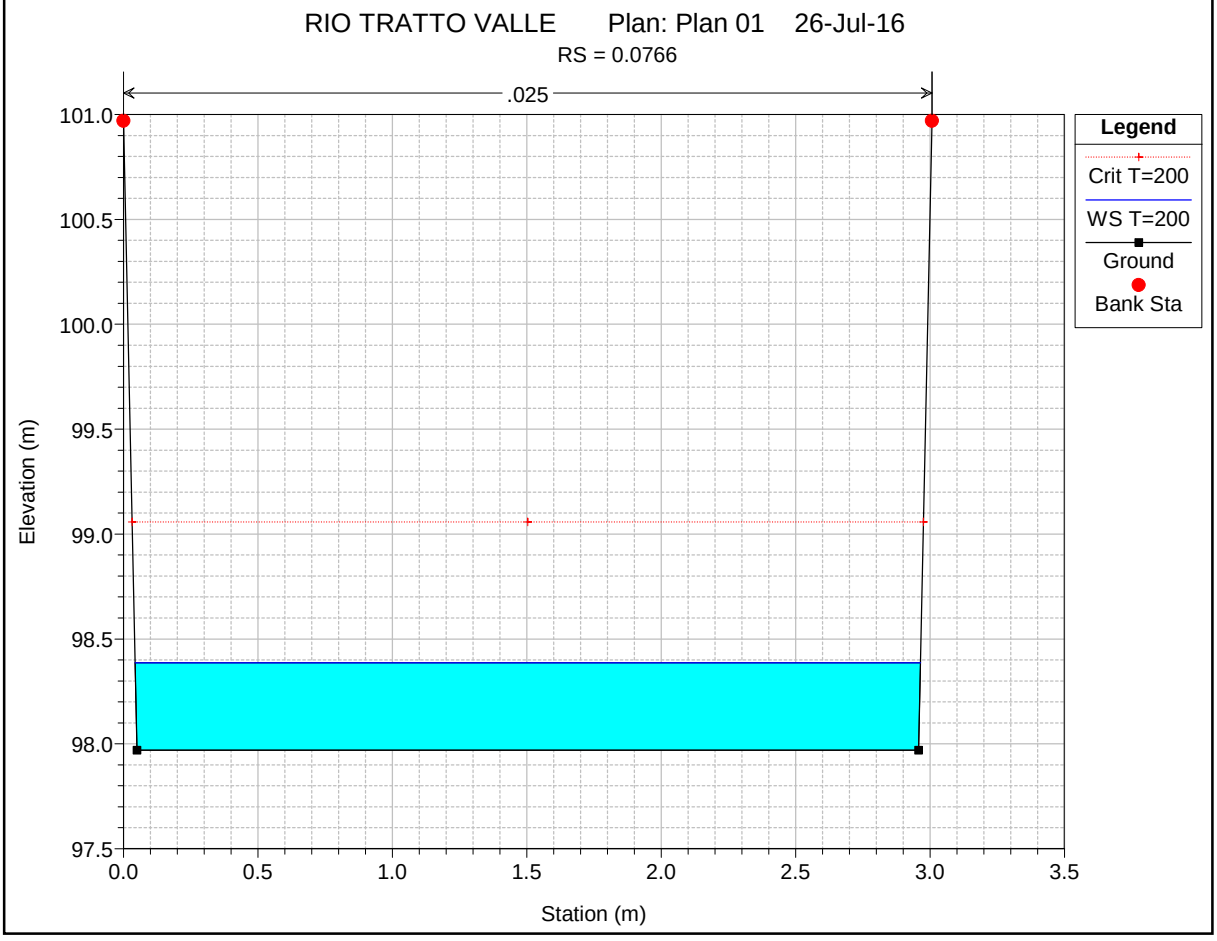

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0845
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
102.0
101.5
101.0
100.5
100.0
99.5
99.0
98.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

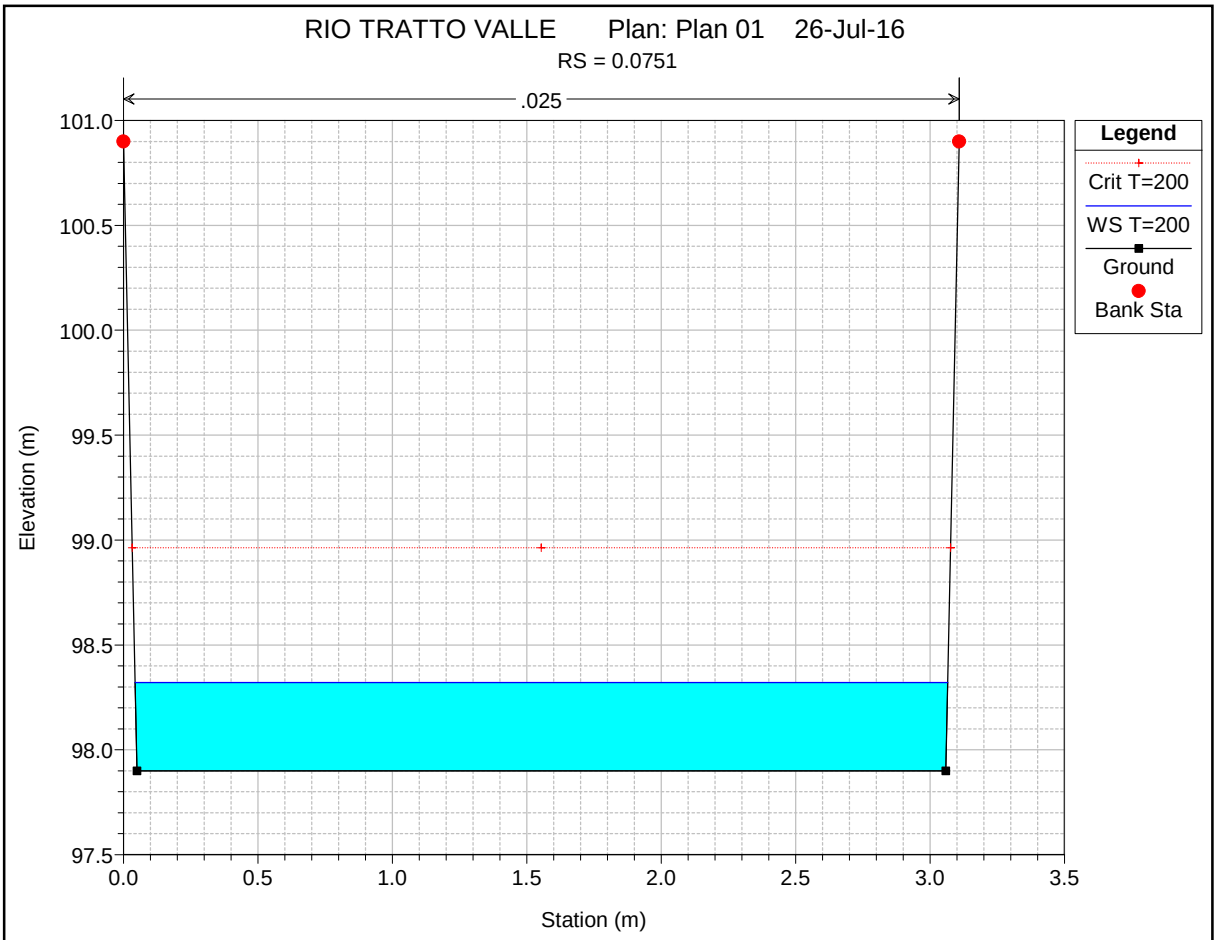

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0828
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
102.0
101.5
101.0
100.5
100.0
99.5
99.0
98.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

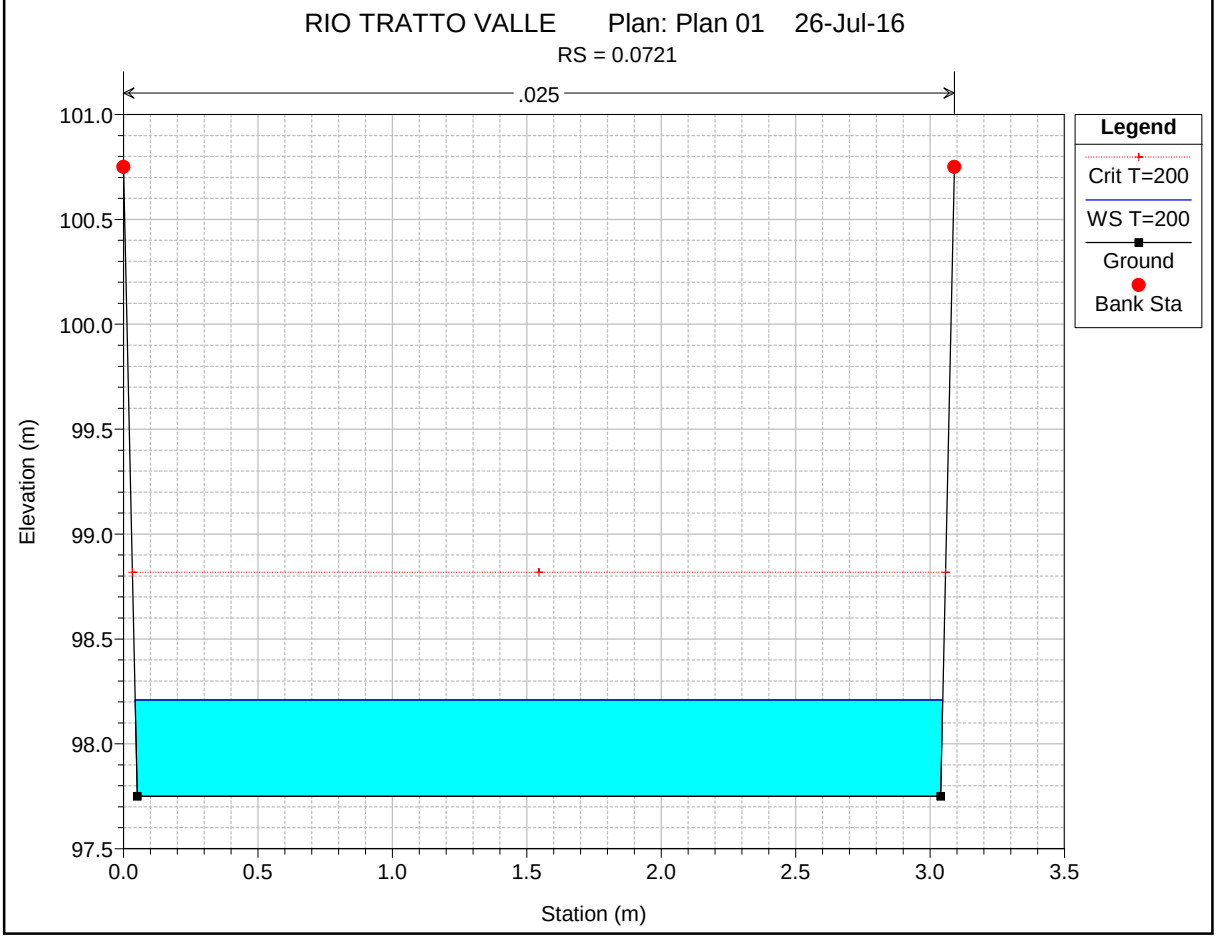

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0812
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
102.0
101.5
101.0
100.5
100.0
99.5
99.0
98.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

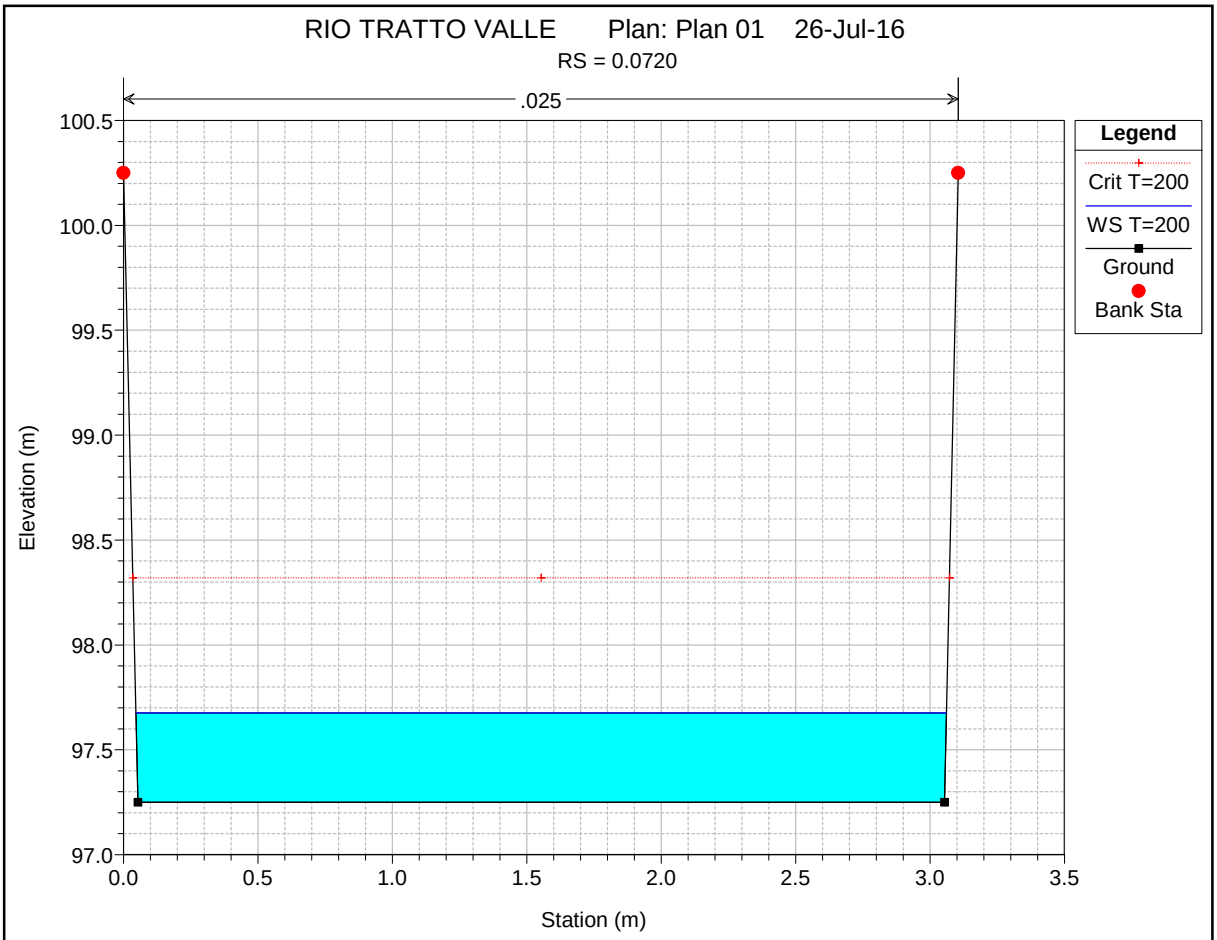

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0799
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
102.0
101.5
101.0
100.5
100.0
99.5
99.0
98.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

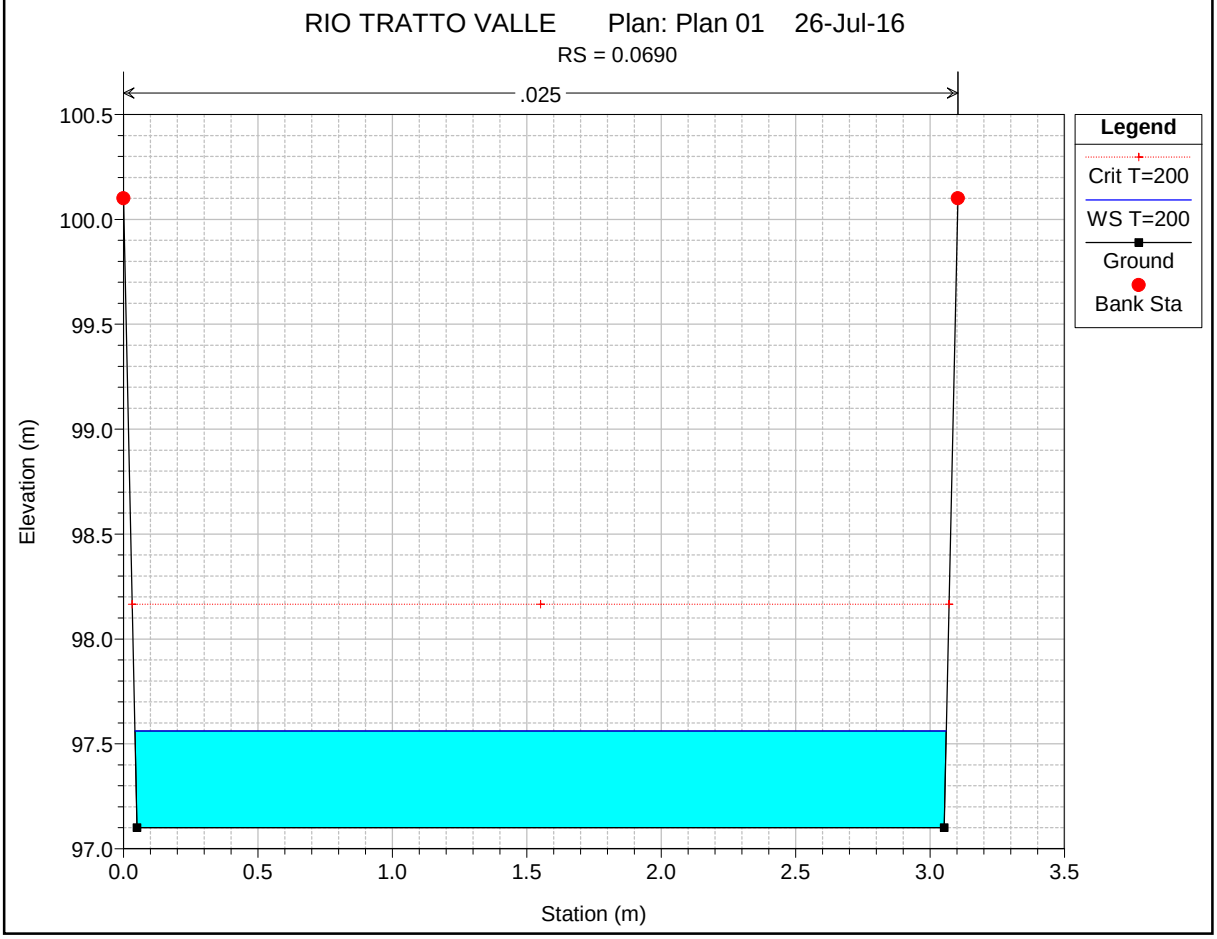

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0781
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
101.5
101.0
100.5
100.0
99.5
99.0
98.5
98.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

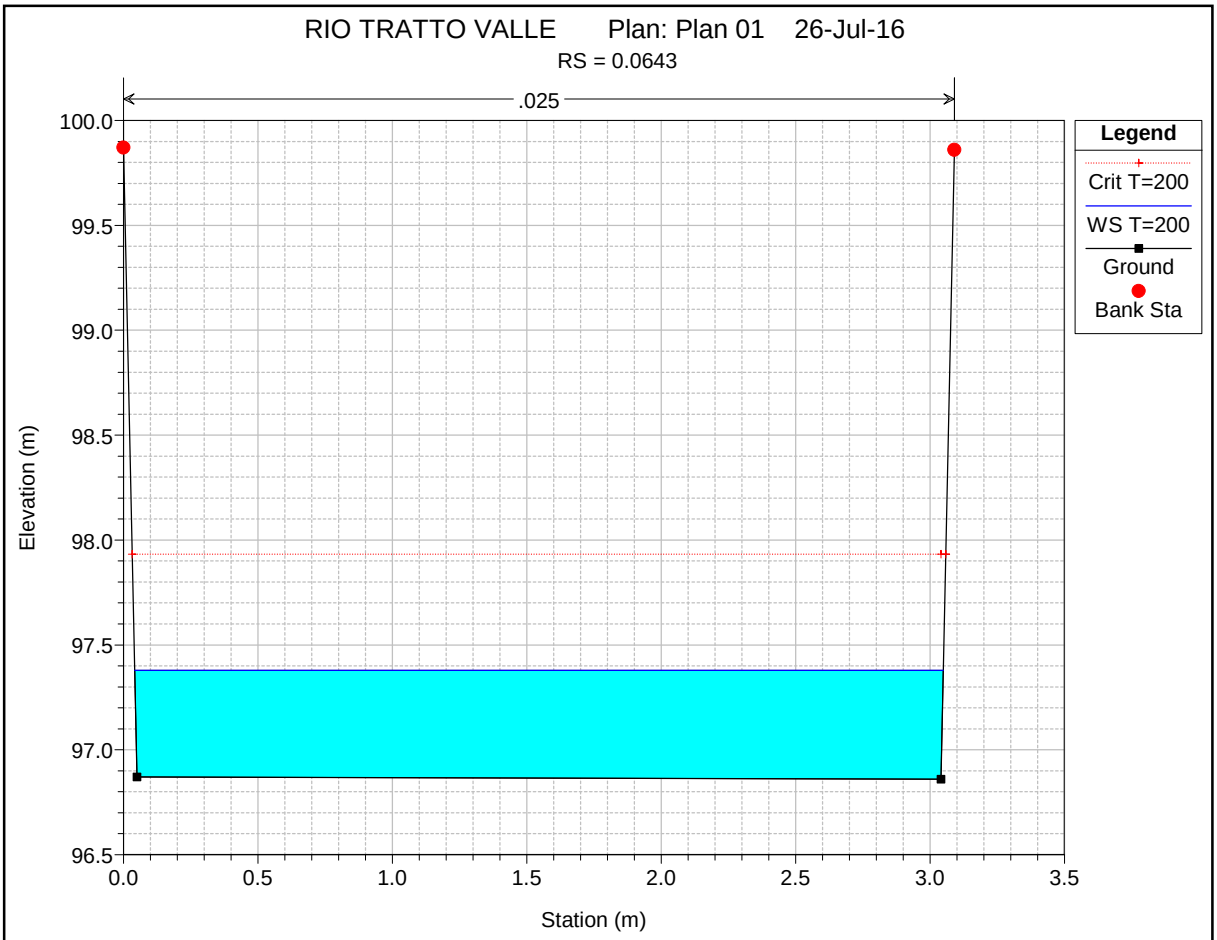

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0766
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
101.0
100.5
100.0
99.5
99.0
98.5
98.0
97.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

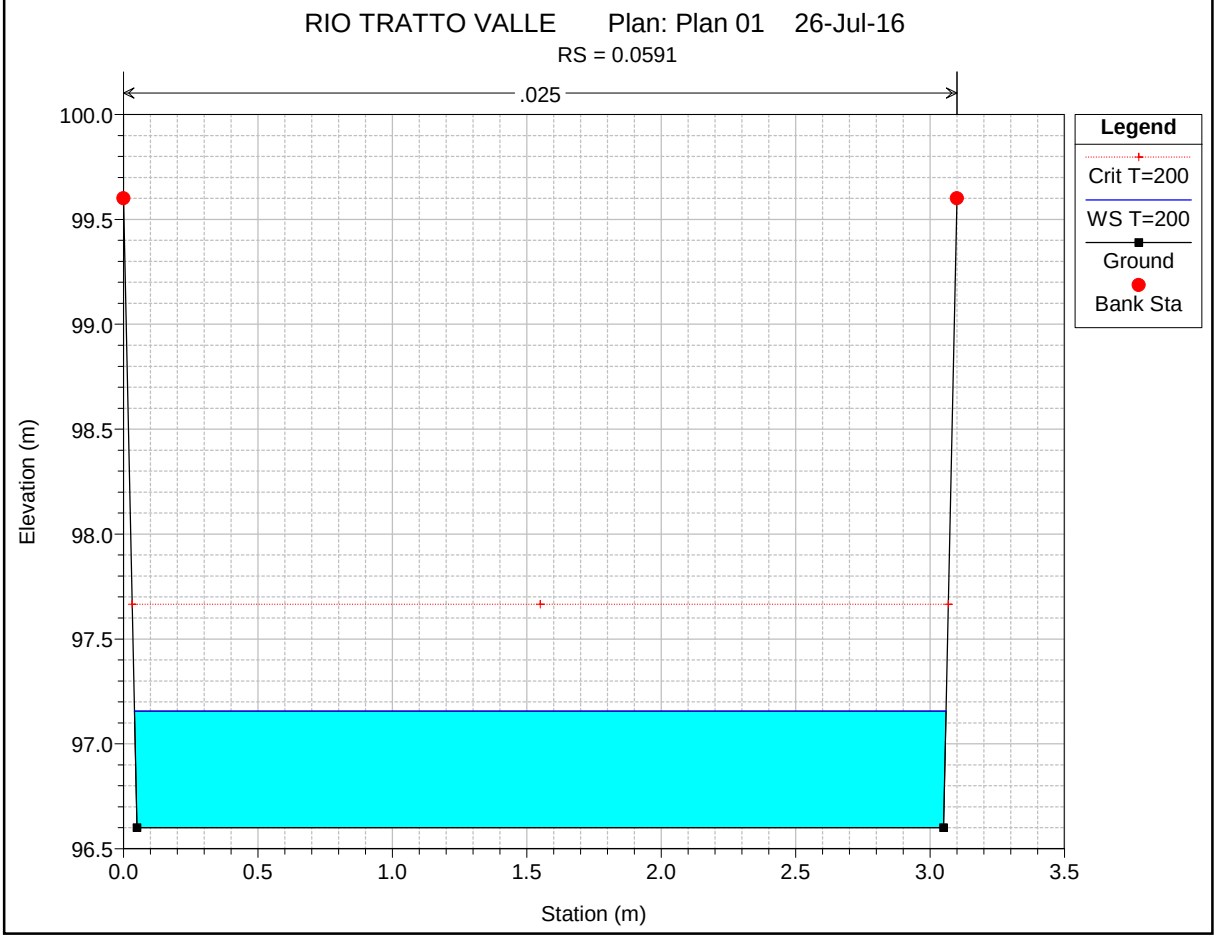

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0751
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
101.0
100.5
100.0
99.5
99.0
98.5
98.0
97.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

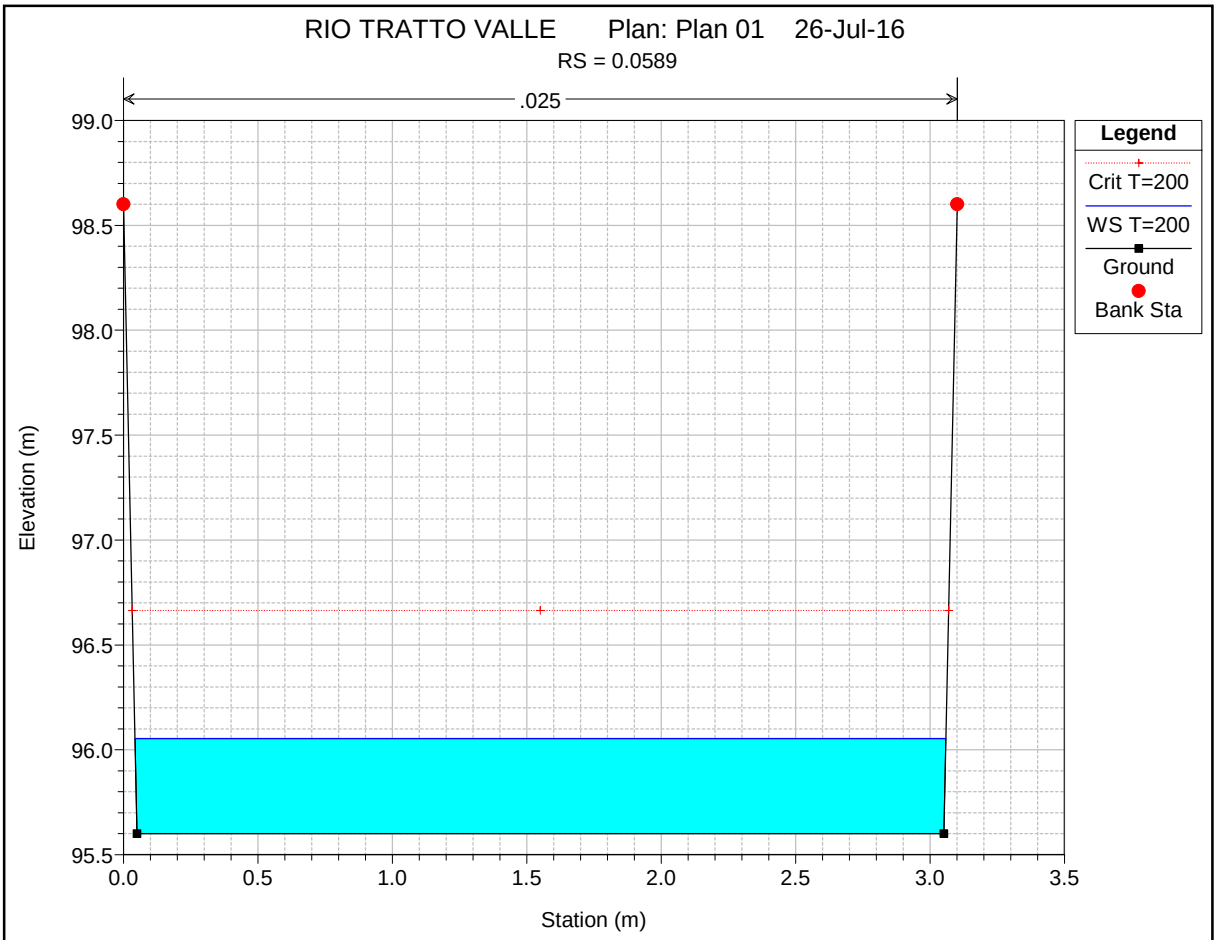

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0721
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
101.0
100.5
100.0
99.5
99.0
98.5
98.0
97.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

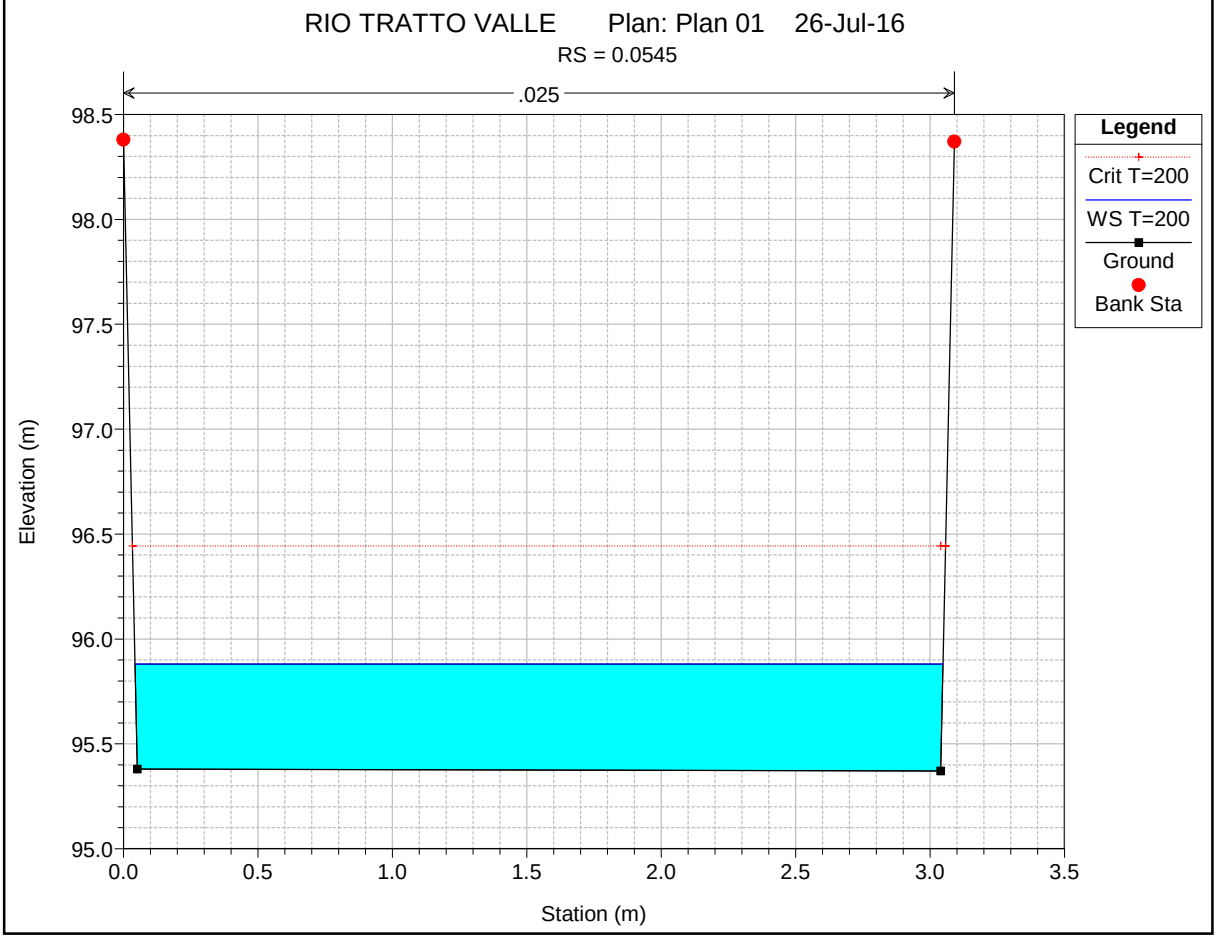

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0720
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
100.5
100.0
99.5
99.0
98.5
98.0
97.5
97.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

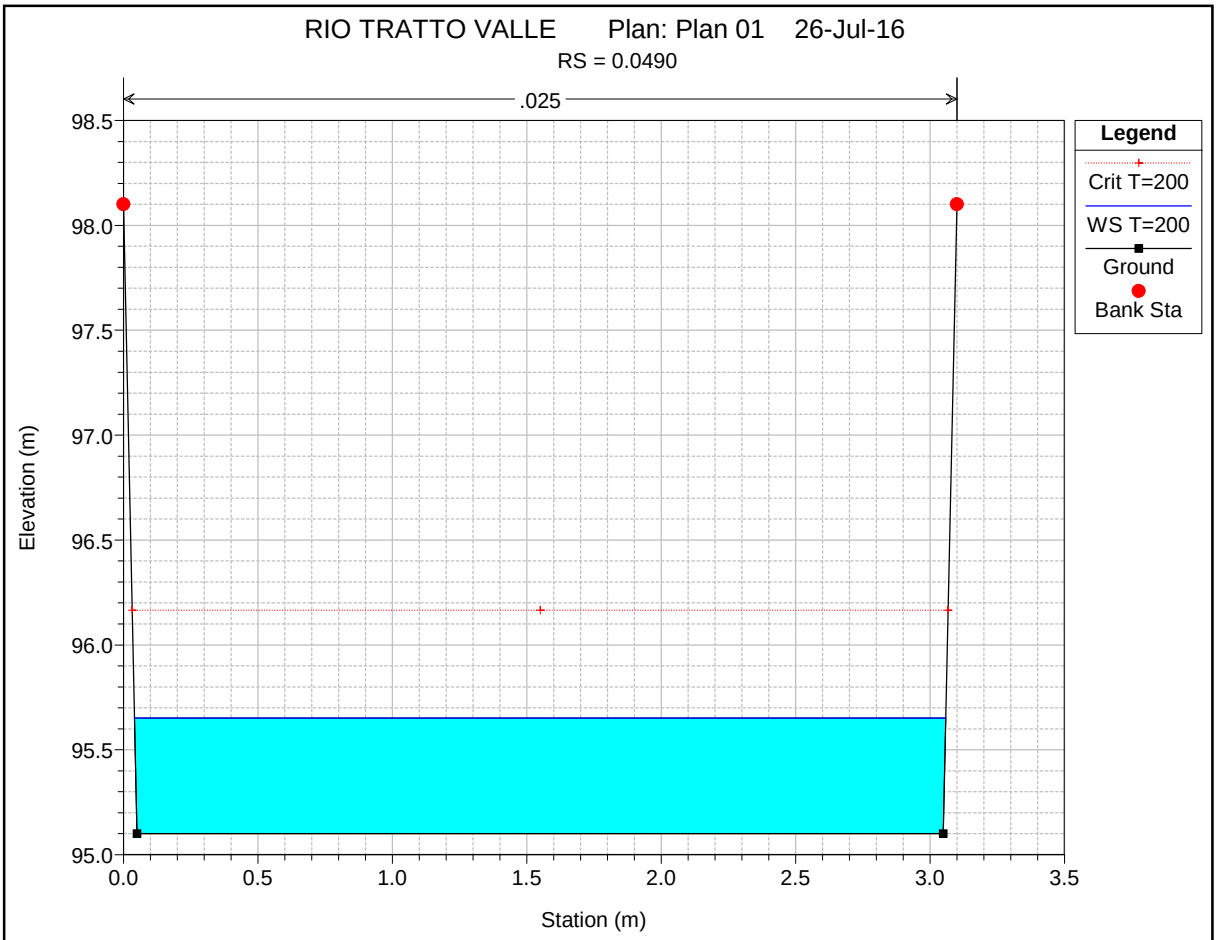

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0690
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
100.5
100.0
99.5
99.0
98.5
98.0
97.5
97.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

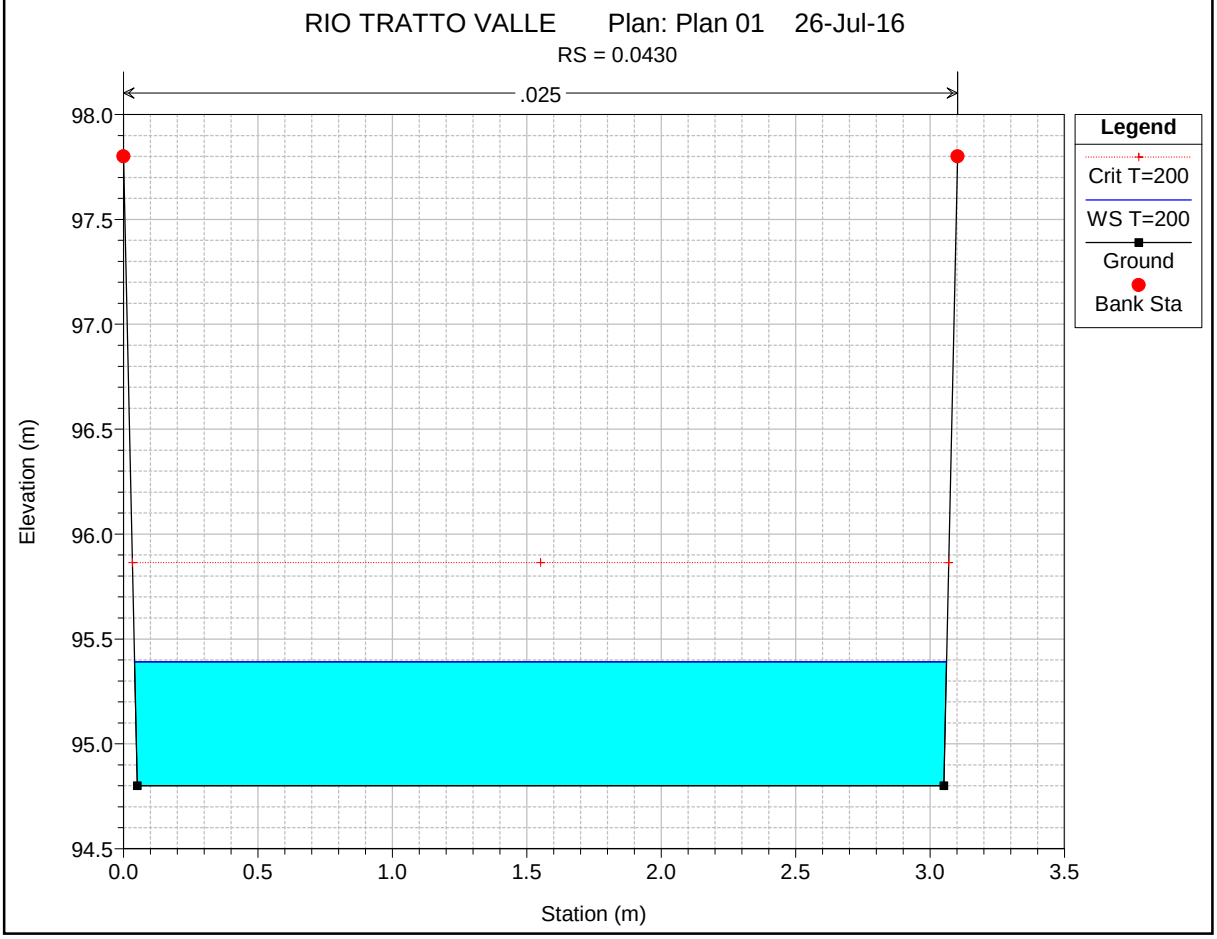

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0643
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
100.0
99.5
99.0
98.5
98.0
97.5
97.0
96.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

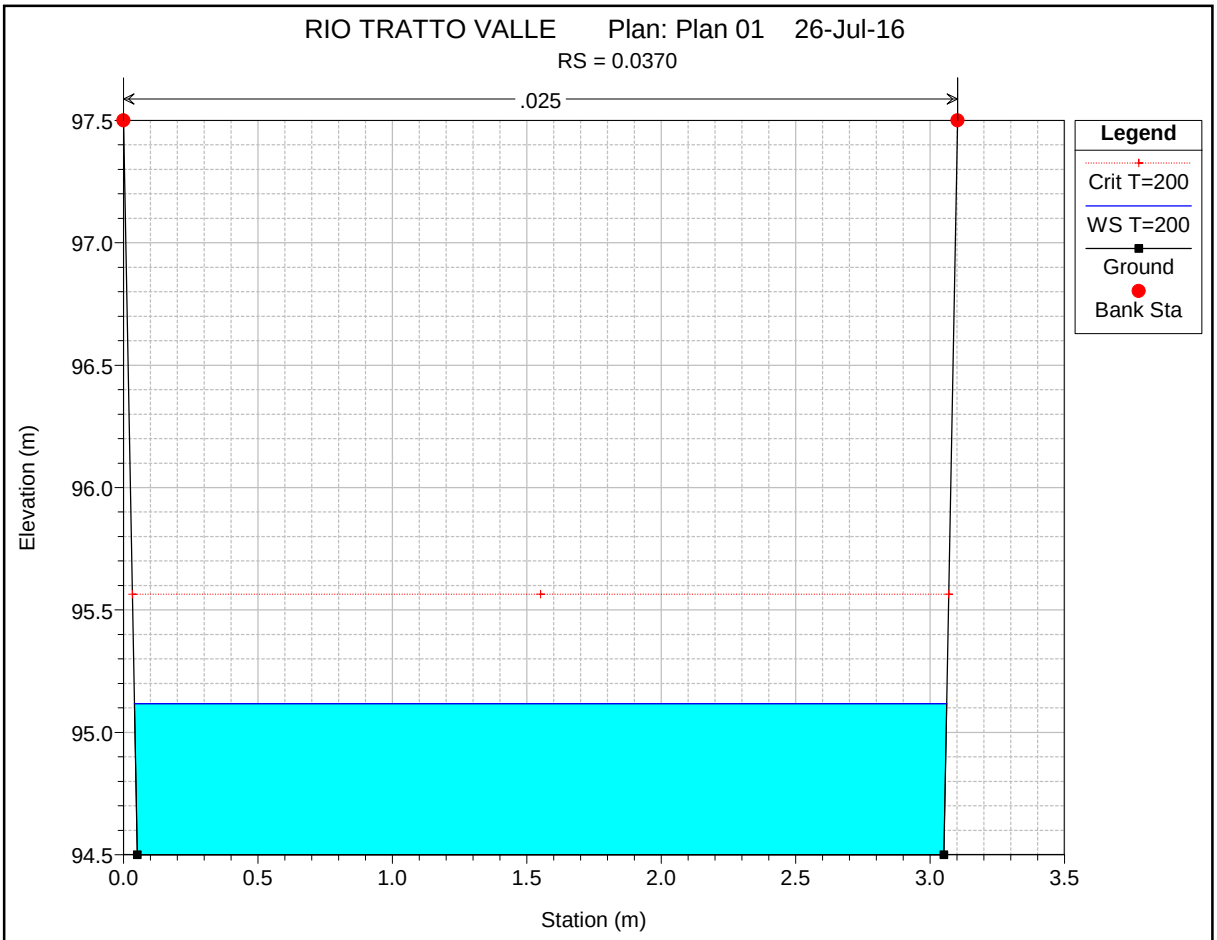

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0591
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
100.0
99.5
99.0
98.5
98.0
97.5
97.0
96.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

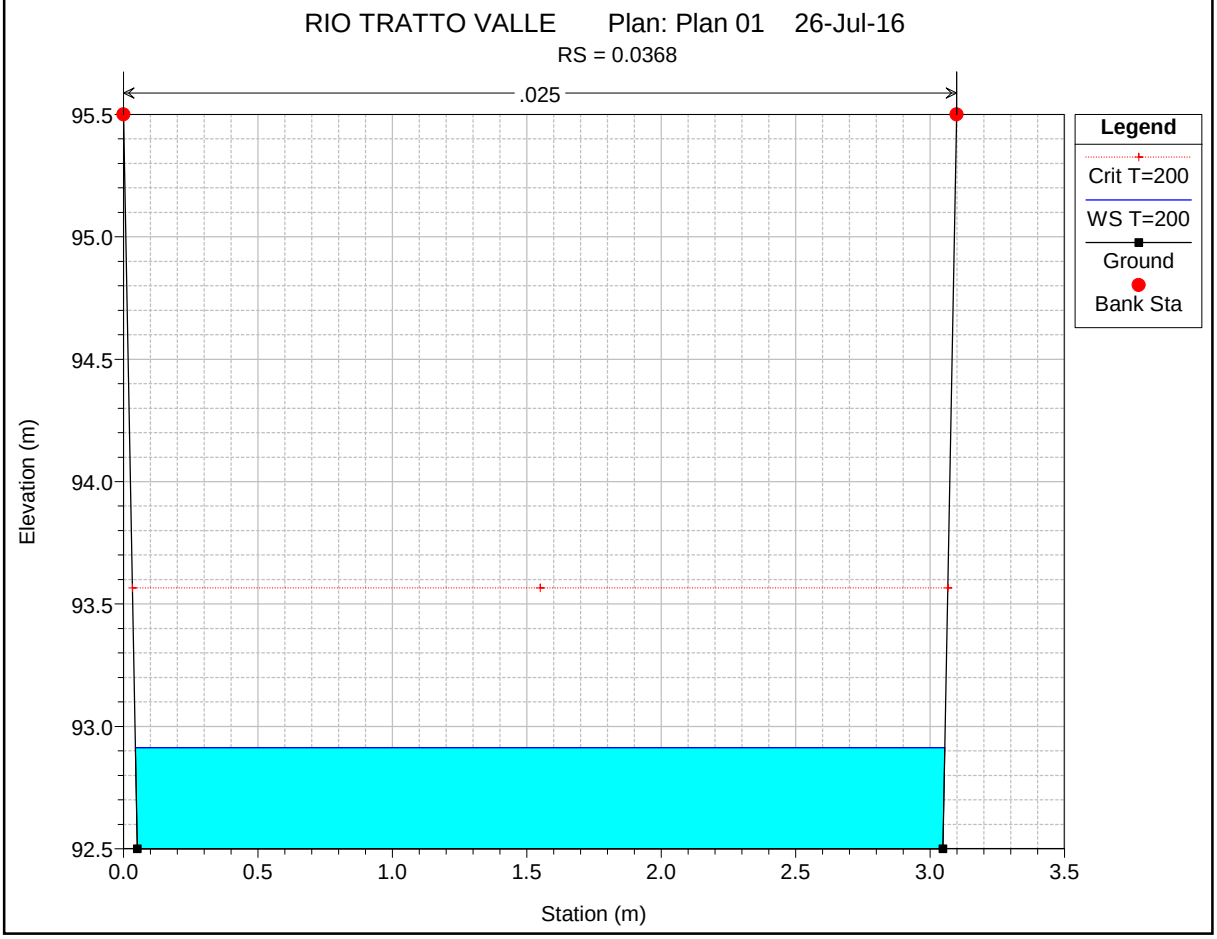

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0589
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
99.0
98.5
98.0
97.5
97.0
96.5
96.0
95.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

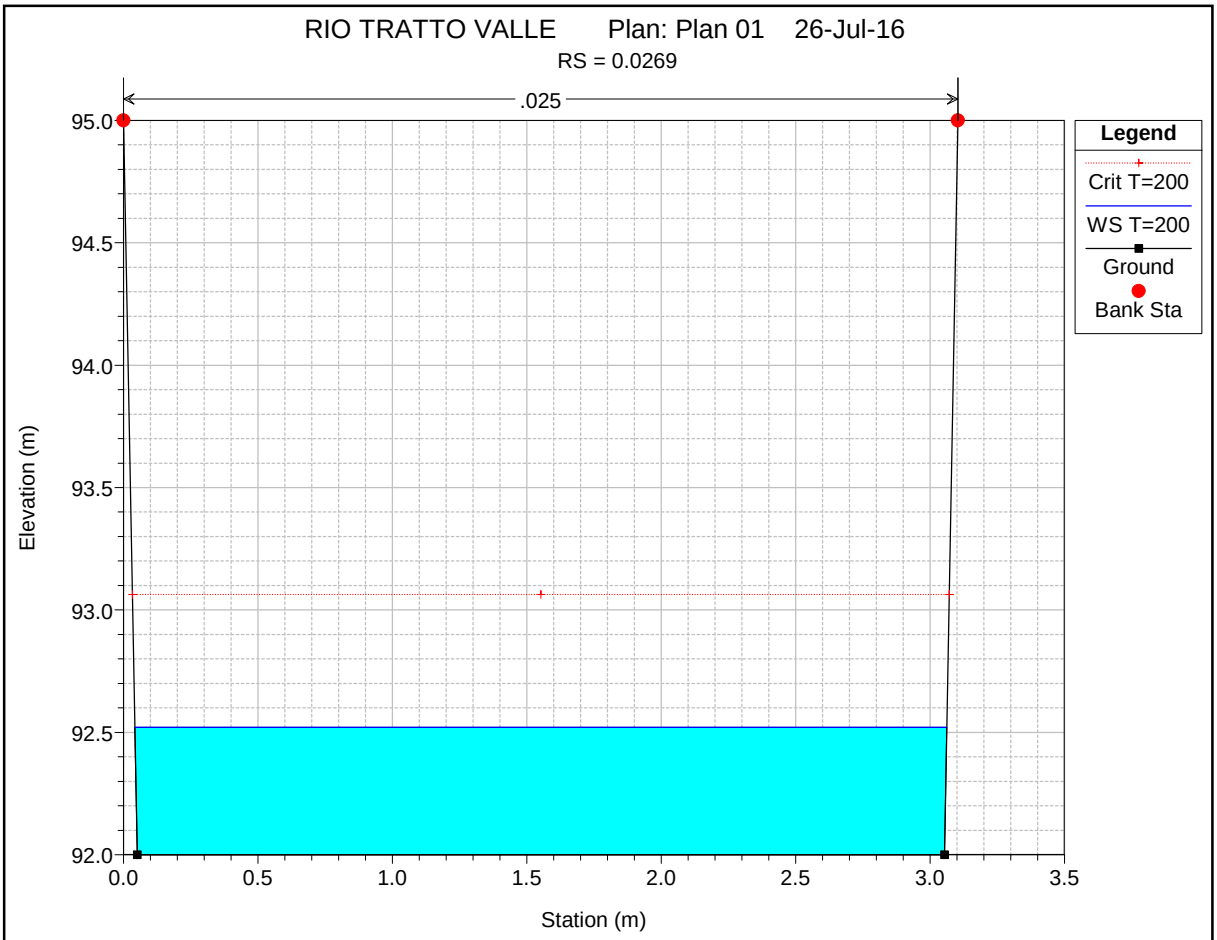

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0545
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
98.5
98.0
97.5
97.0
96.5
96.0
95.5
95.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

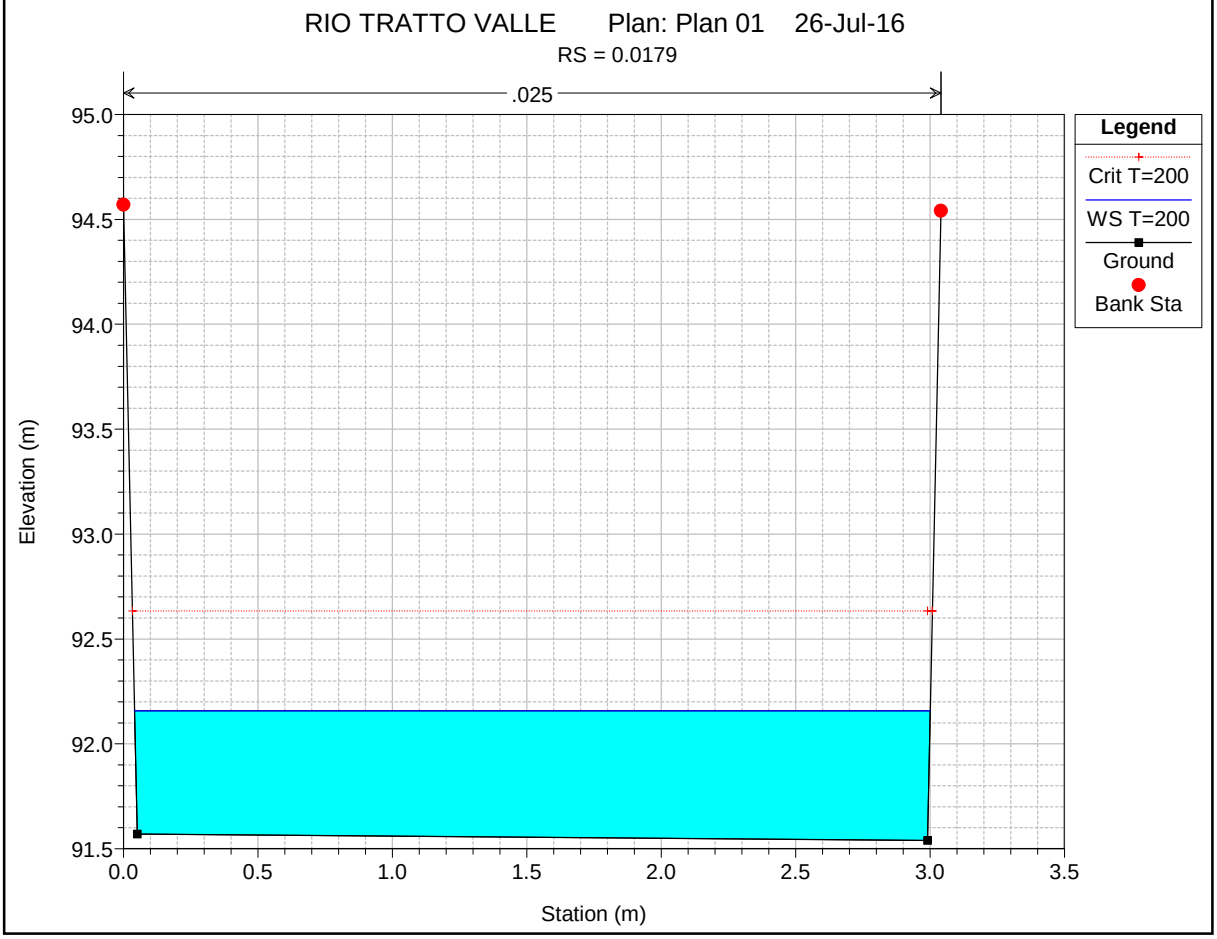

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0490
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
98.5
98.0
97.5
97.0
96.5
96.0
95.5
95.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

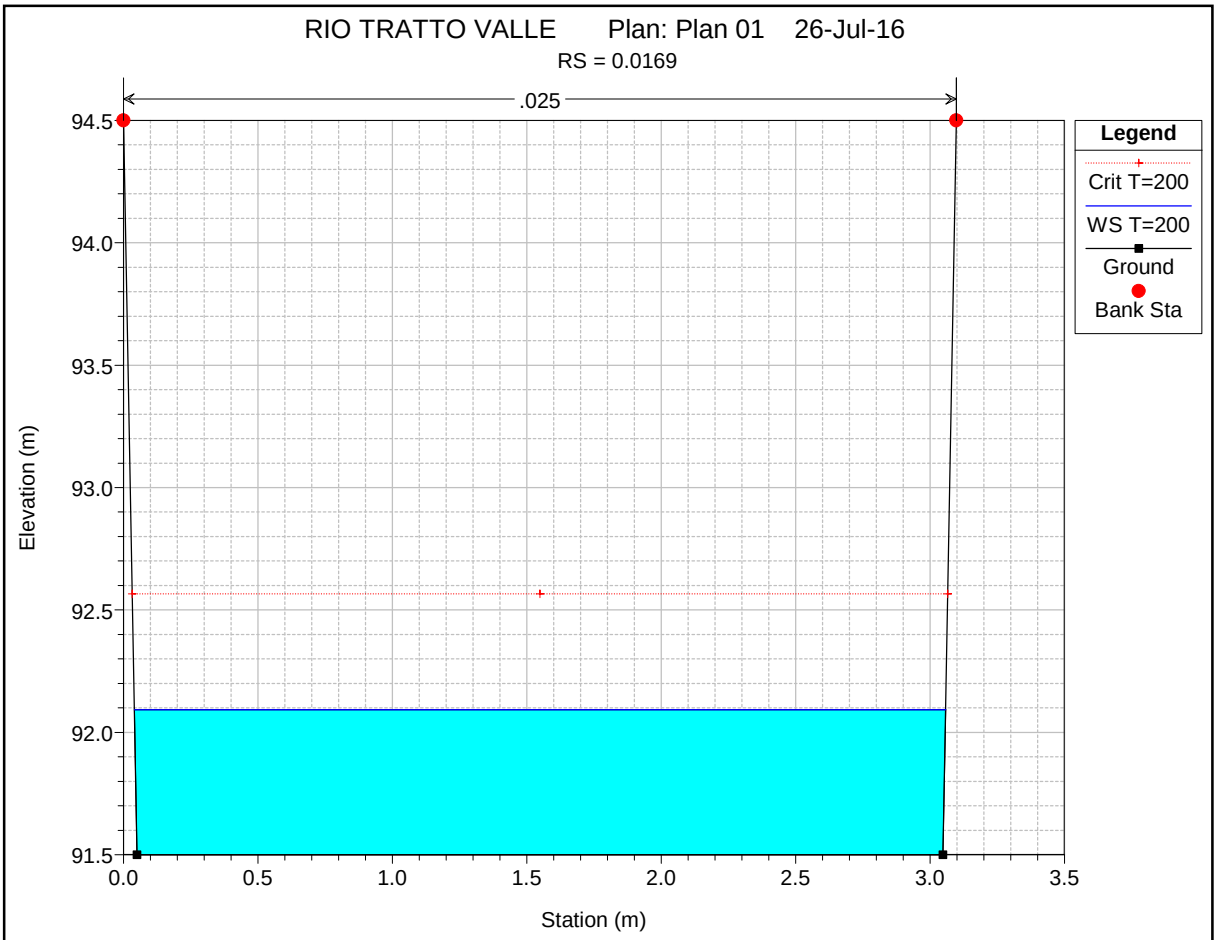

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0430
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
98.0
97.5
97.0
96.5
96.0
95.5
95.0
94.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

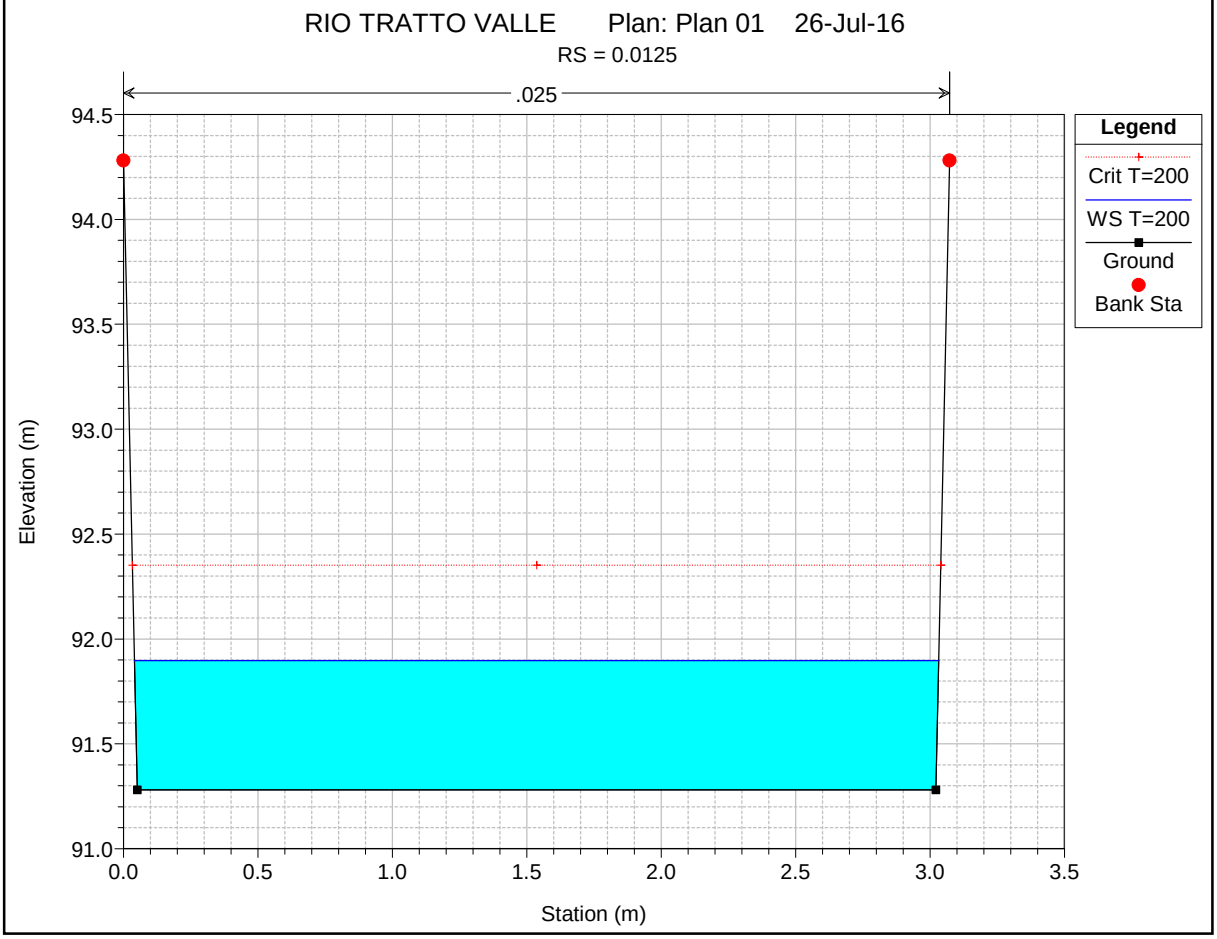

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0370
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
97.5
97.0
96.5
96.0
95.5
95.0
94.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

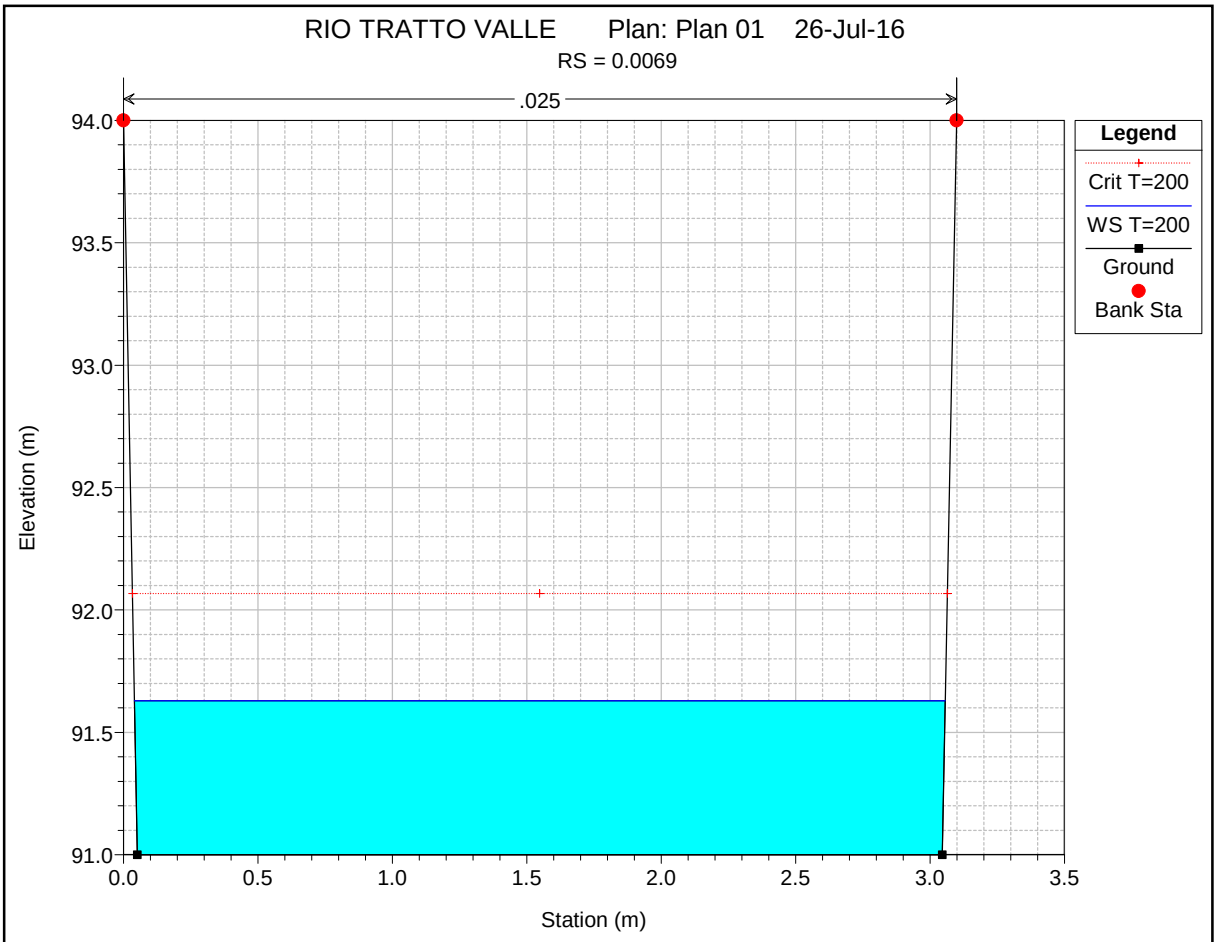

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0368
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
95.5
95.0
94.5
94.0
93.5
93.0
92.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

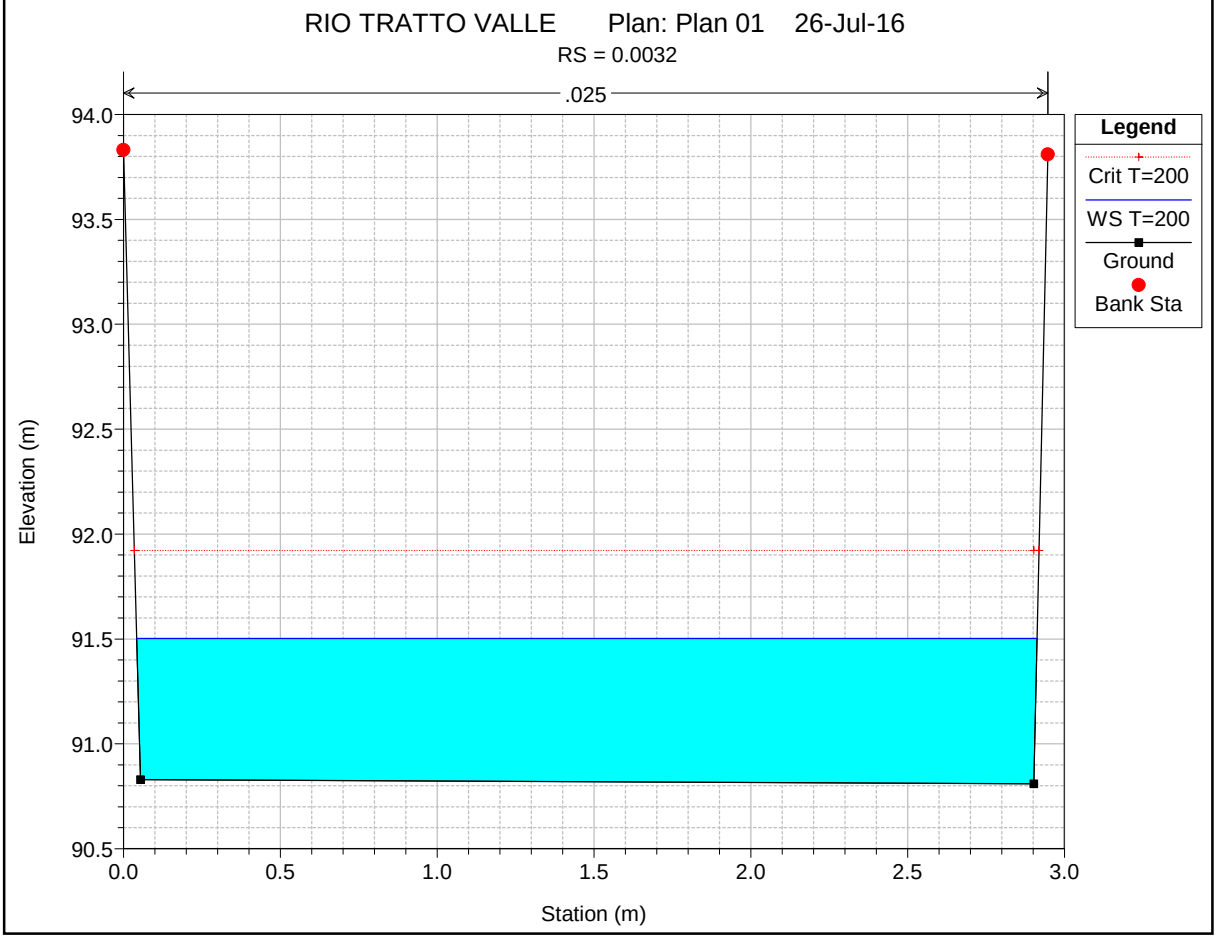

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0269
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
95.0
94.5
94.0
93.5
93.0
92.5
92.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0179
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
95.0
94.5
94.0
93.5
93.0
92.5
92.0
91.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0169
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.5
94.0
93.5
93.0
92.5
92.0
91.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

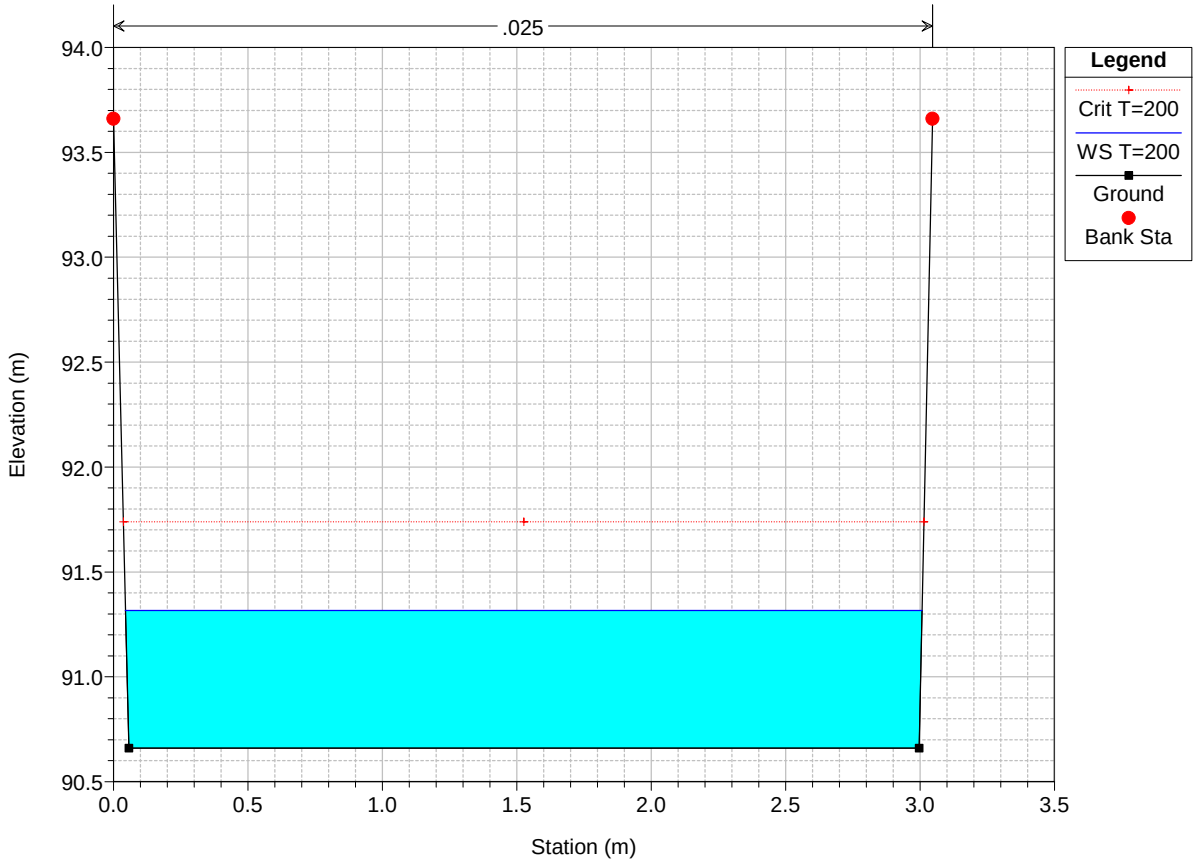

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0125
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.5
94.0
93.5
93.0
92.5
92.0
91.5
91.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0069
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO TRATTO VALLE Plan: Plan 01 26-Jul-16
RS = 0.0032
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
90.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0

RIO TRATTO VALLE Plan: Plan 01 26-Jul-16

RS = 0.0000



RIO TRATTO VALLE Plan: Plan 01 26-Jul-16

rio7 Reach 1

Legend

Crit T=200

WS T=200

Ground

LOB

ROB

Elevation (m)

200

180

160

140

120

100

80

0

50

100

150

200

250

300

350

Main Channel Distance (m)

0.0032 0.0069 0.0125 0.0169 0.0269 0.0368 0.0430 0.0490 0.0545 0.0589 0.0643 0.0690 0.0721 0.0766 0.0799 0.0828 0.0875 0.0908 0.0943 0.0973 0.1003 0.1033 0.1063 0.1093 0.1123 0.1153 0.1184 0.1213 0.1244 0.1274 0.1304 0.1334 0.1365 0.1423 0.1453 0.1510 0.1568 0.1604 0.1635 0.1666 0.1697 0.1728 0.1760 0.1791 0.1823 0.1854 0.1885 0.1916 0.1947 0.1978 0.2009 0.2040 0.2070 0.2101 0.2204 0.2299 0.2365 0.2422 0.2467 0.2523 0.2569 0.2624 0.2668 0.2724 0.2772 0.2825 0.2874 0.2926 0.2958 0.2988 0.3019 0.3052 0.3102

HEC-RAS Plan:

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.3102	T=200	10.40	175.61	176.88	176.88	2.97	3.25	180.13	3.12	180.00	0.45	1.00
Reach 1	0.3052	T=200	10.40	172.48	173.28	174.05	8.24	1.92	175.20	3.72	177.00	3.46	3.35
Reach 1	0.3037	T=200	10.40	171.93	172.48	173.22	8.66	2.35	174.83	2.18	174.66	3.83	3.96
Reach 1	0.3021	T=200	10.40	171.37	171.76	172.44	9.07	2.60	174.36	2.60	174.36	4.19	4.67
Reach 1	0.3019	T=200	10.40	168.35	168.65	169.42	11.69	2.70	171.35	2.70	171.35	6.96	6.86
Reach 1	0.2990	T=200	10.40	168.20	168.54	169.27	10.17	2.66	171.20	2.66	171.20	5.28	5.57
Reach 1	0.2988	T=200	10.40	166.70	167.00	167.76	11.38	2.70	169.70	2.70	169.70	6.61	6.60
Reach 1	0.2958	T=200	10.40	166.55	166.90	167.61	9.91	2.65	169.55	2.65	169.55	5.01	5.36
Reach 1	0.2926	T=200	10.40	166.40	166.79	167.46	8.79	2.61	169.40	2.61	169.40	3.94	4.48
Reach 1	0.2874	T=200	10.40	166.24	166.72	167.32	7.38	2.52	169.24	2.53	169.25	2.78	3.44
Reach 1	0.2827	T=200	10.40	166.10	166.63	167.17	6.50	2.47	169.10	2.47	169.10	2.16	2.85
Reach 1	0.2825	T=200	10.40	165.10	165.54	166.16	7.84	2.56	168.10	2.56	168.10	3.13	3.77
Reach 1	0.2772	T=200	10.40	164.94	165.46	166.00	6.71	2.48	167.94	2.48	167.94	2.30	2.99
Reach 1	0.2726	T=200	10.40	164.80	165.37	165.86	6.03	2.43	167.80	2.43	167.80	1.86	2.55
Reach 1	0.2724	T=200	10.40	163.80	164.26	164.86	7.48	2.54	166.80	2.54	166.80	2.85	3.52
Reach 1	0.2668	T=200	10.40	163.63	164.17	164.69	6.44	2.46	166.63	2.46	166.63	2.11	2.81
Reach 1	0.2625	T=200	10.40	163.50	164.09	164.56	5.85	2.41	166.50	2.41	166.50	1.75	2.44
Reach 1	0.2624	T=200	10.40	162.50	162.97	163.57	7.34	2.53	165.50	2.53	165.50	2.75	3.42
Reach 1	0.2569	T=200	10.40	162.33	162.88	163.40	6.36	2.46	165.34	2.45	165.33	2.06	2.75
Reach 1	0.2524	T=200	10.40	162.20	162.80	163.27	5.79	2.40	165.20	2.40	165.20	1.71	2.39
Reach 1	0.2523	T=200	10.40	161.20	161.67	162.26	7.30	2.53	164.20	2.53	164.20	2.72	3.39
Reach 1	0.2467	T=200	10.40	161.03	161.58	162.10	6.31	2.46	164.04	2.45	164.03	2.03	2.71
Reach 1	0.2424	T=200	10.40	160.90	161.50	161.97	5.77	2.40	163.90	2.40	163.90	1.70	2.39
Reach 1	0.2422	T=200	10.40	159.40	159.84	160.46	7.92	2.56	162.40	2.56	162.40	3.20	3.83
Reach 1	0.2365	T=200	10.40	159.11	159.62	160.18	6.91	2.49	162.11	2.50	162.12	2.43	3.12
Reach 1	0.2299	T=200	10.40	158.78	159.34	159.85	6.19	2.44	161.78	2.44	161.78	1.96	2.65
Reach 1	0.2204	T=200	10.40	158.30	158.92	159.37	5.63	2.38	161.30	2.39	161.31	1.62	2.30
Reach 1	0.2103	T=200	10.40	157.80	158.44	158.87	5.42	2.36	160.80	2.36	160.80	1.50	2.17
Reach 1	0.2101	T=200	10.40	157.40	157.97	158.47	6.13	2.44	160.40	2.44	160.40	1.92	2.61
Reach 1	0.2072	T=200	10.40	157.25	157.83	158.31	5.94	2.42	160.25	2.42	160.25	1.80	2.49
Reach 1	0.2070	T=200	10.40	156.85	157.38	157.91	6.57	2.47	159.85	2.47	159.85	2.20	2.90
Reach 1	0.2041	T=200	10.40	156.70	157.25	157.76	6.29	2.45	159.70	2.45	159.70	2.02	2.72
Reach 1	0.2040	T=200	10.40	156.30	156.80	157.36	6.87	2.50	159.30	2.50	159.30	2.41	3.10
Reach 1	0.2010	T=200	10.40	156.15	156.68	157.21	6.52	2.47	159.15	2.47	159.15	2.16	2.86
Reach 1	0.2009	T=200	10.40	155.75	156.24	156.81	7.07	2.51	158.75	2.51	158.75	2.55	3.24
Reach 1	0.1980	T=200	10.40	155.60	156.12	156.66	6.68	2.48	158.60	2.48	158.60	2.27	2.97
Reach 1	0.1978	T=200	10.40	155.20	155.68	156.27	7.21	2.52	158.20	2.52	158.20	2.65	3.33
Reach 1	0.1949	T=200	10.40	155.05	155.56	156.11	6.79	2.49	158.05	2.49	158.05	2.35	3.05

HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.1947	T=200	10.40	154.65	155.12	155.71	7.32	2.53	157.65	2.53	157.65	2.73	3.41
Reach 1	0.1918	T=200	10.40	154.50	155.00	155.56	6.87	2.50	157.50	2.50	157.50	2.41	3.10
Reach 1	0.1916	T=200	10.40	154.10	154.57	155.17	7.39	2.53	157.10	2.53	157.10	2.78	3.45
Reach 1	0.1887	T=200	10.40	153.95	154.45	155.02	6.91	2.50	156.95	2.50	156.95	2.44	3.12
Reach 1	0.1885	T=200	10.40	153.55	154.02	154.62	7.43	2.53	156.55	2.53	156.55	2.81	3.48
Reach 1	0.1856	T=200	10.40	153.40	153.90	154.46	6.96	2.50	156.40	2.50	156.40	2.47	3.16
Reach 1	0.1854	T=200	10.40	153.00	153.46	154.06	7.47	2.54	156.00	2.54	156.00	2.85	3.51
Reach 1	0.1824	T=200	10.40	152.85	153.35	153.91	6.97	2.50	155.85	2.50	155.85	2.47	3.16
Reach 1	0.1823	T=200	10.40	152.45	152.91	153.51	7.48	2.54	155.45	2.54	155.45	2.85	3.52
Reach 1	0.1792	T=200	10.40	152.30	152.80	153.36	6.97	2.50	155.30	2.50	155.30	2.48	3.16
Reach 1	0.1791	T=200	10.40	151.90	152.36	152.96	7.48	2.54	154.90	2.54	154.90	2.85	3.52
Reach 1	0.1762	T=200	10.40	151.75	152.24	152.81	6.99	2.51	154.75	2.51	154.75	2.49	3.18
Reach 1	0.1760	T=200	10.40	151.35	151.81	152.42	7.50	2.54	154.35	2.54	154.35	2.87	3.53
Reach 1	0.1729	T=200	10.40	151.20	151.70	152.26	6.97	2.50	154.20	2.50	154.20	2.48	3.17
Reach 1	0.1728	T=200	10.40	150.80	151.26	151.86	7.48	2.54	153.80	2.54	153.80	2.85	3.52
Reach 1	0.1698	T=200	10.40	150.65	151.14	151.71	6.99	2.51	153.65	2.51	153.65	2.49	3.18
Reach 1	0.1697	T=200	10.40	149.15	149.54	150.21	8.77	2.61	152.15	2.61	152.15	3.92	4.47
Reach 1	0.1668	T=200	10.40	149.00	149.43	150.06	8.01	2.57	152.00	2.57	152.00	3.27	3.90
Reach 1	0.1666	T=200	10.40	147.50	147.86	148.56	9.56	2.64	150.50	2.64	150.50	4.66	5.08
Reach 1	0.1637	T=200	10.40	147.35	147.75	148.41	8.61	2.60	150.35	2.60	150.35	3.78	4.34
Reach 1	0.1635	T=200	10.40	145.85	146.19	146.91	10.05	2.66	148.85	2.66	148.85	5.15	5.48
Reach 1	0.1606	T=200	10.40	145.70	146.08	146.76	8.98	2.62	148.70	2.62	148.70	4.11	4.63
Reach 1	0.1604	T=200	10.40	144.20	144.53	145.26	10.36	2.67	147.20	2.67	147.20	5.47	5.73
Reach 1	0.1568	T=200	10.40	144.02	144.41	145.09	8.98	2.61	147.02	2.62	147.03	4.11	4.62
Reach 1	0.1510	T=200	10.40	143.73	144.20	144.80	7.54	2.54	146.74	2.53	146.73	2.90	3.55
Reach 1	0.1455	T=200	10.40	143.45	143.97	144.52	6.71	2.48	146.45	2.48	146.45	2.29	2.98
Reach 1	0.1453	T=200	10.40	141.92	142.32	142.99	8.59	2.60	144.92	2.60	144.92	3.76	4.33
Reach 1	0.1425	T=200	10.40	141.77	142.21	142.84	7.89	2.56	144.77	2.56	144.77	3.17	3.81
Reach 1	0.1423	T=200	10.40	140.27	140.63	141.33	9.47	2.64	143.27	2.64	143.27	4.57	5.01
Reach 1	0.1393	T=200	10.40	138.62	138.96	139.69	10.14	2.66	141.62	2.66	141.62	5.24	5.54
Reach 1	0.1365	T=200	10.40	138.47	138.85	139.54	9.06	2.62	141.47	2.62	141.47	4.19	4.69
Reach 1	0.1363	T=200	10.40	135.62	135.92	136.69	11.55	2.70	138.62	2.70	138.62	6.80	6.74
Reach 1	0.1335	T=200	10.40	135.47	135.81	136.54	10.15	2.66	138.47	2.66	138.47	5.25	5.56
Reach 1	0.1334	T=200	10.40	133.12	133.41	134.19	12.03	2.71	136.12	2.71	136.12	7.37	7.17
Reach 1	0.1305	T=200	10.40	132.97	133.30	134.04	10.47	2.67	135.97	2.67	135.97	5.59	5.82
Reach 1	0.1304	T=200	10.40	131.47	131.77	132.53	11.65	2.70	134.47	2.70	134.47	6.92	6.84
Reach 1	0.1275	T=200	10.40	131.32	131.66	132.38	10.19	2.66	134.32	2.66	134.32	5.29	5.59
Reach 1	0.1274	T=200	10.40	128.72	129.00	129.78	12.24	2.72	131.72	2.72	131.72	7.64	7.36

HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.1245	T=200	10.40	128.57	128.90	129.63	10.62	2.67	131.57	2.67	131.57	5.75	5.95
Reach 1	0.1244	T=200	10.40	127.07	127.36	128.13	11.78	2.71	130.07	2.71	130.07	7.07	6.95
Reach 1	0.1215	T=200	10.40	126.92	127.26	127.98	10.28	2.66	129.92	2.66	129.92	5.39	5.67
Reach 1	0.1213	T=200	10.40	124.32	124.60	125.38	12.32	2.72	127.32	2.72	127.32	7.74	7.43
Reach 1	0.1185	T=200	10.40	124.17	124.49	125.23	10.68	2.68	127.17	2.68	127.17	5.81	6.00
Reach 1	0.1184	T=200	10.40	122.67	122.96	123.73	11.83	2.71	125.67	2.71	125.67	7.14	7.00
Reach 1	0.1155	T=200	10.40	122.52	122.86	123.58	10.31	2.66	125.52	2.66	125.52	5.42	5.69
Reach 1	0.1153	T=200	10.40	119.92	120.20	120.98	12.34	2.72	122.92	2.72	122.92	7.76	7.45
Reach 1	0.1125	T=200	10.40	119.77	120.09	120.83	10.69	2.68	122.77	2.68	122.77	5.82	6.01
Reach 1	0.1123	T=200	10.40	118.27	118.56	119.33	11.84	2.71	121.27	2.71	121.27	7.15	7.00
Reach 1	0.1095	T=200	10.40	118.12	118.46	119.19	10.34	2.66	121.12	2.66	121.12	5.45	5.71
Reach 1	0.1093	T=200	10.40	115.62	115.90	116.69	12.29	2.72	118.62	2.72	118.62	7.70	7.40
Reach 1	0.1065	T=200	10.40	115.45	115.77	116.52	10.68	2.68	118.45	2.68	118.45	5.81	5.99
Reach 1	0.1063	T=200	10.40	113.95	114.24	115.02	11.83	2.71	116.95	2.71	116.95	7.14	6.99
Reach 1	0.1035	T=200	10.40	113.80	114.14	114.87	10.33	2.66	116.80	2.66	116.80	5.44	5.70
Reach 1	0.1033	T=200	10.40	111.30	111.58	112.37	12.28	2.72	114.30	2.72	114.30	7.69	7.40
Reach 1	0.1005	T=200	10.40	111.15	111.47	112.22	10.65	2.68	114.15	2.68	114.15	5.78	5.98
Reach 1	0.1003	T=200	10.40	109.65	109.94	110.72	11.81	2.71	112.65	2.71	112.65	7.11	6.98
Reach 1	0.0975	T=200	10.40	109.50	109.84	110.56	10.31	2.66	112.50	2.66	112.50	5.42	5.69
Reach 1	0.0973	T=200	10.40	106.98	107.26	108.04	12.28	2.72	109.98	2.72	109.98	7.69	7.40
Reach 1	0.0945	T=200	10.40	106.83	107.15	107.89	10.65	2.68	109.83	2.68	109.83	5.78	5.97
Reach 1	0.0943	T=200	10.40	105.33	105.62	106.39	11.80	2.71	108.33	2.71	108.33	7.10	6.97
Reach 1	0.0927	T=200	10.40	105.25	105.57	106.32	10.91	2.68	108.25	2.68	108.25	6.06	6.18
Reach 1	0.0926	T=200	10.40	103.75	104.04	104.82	12.03	2.71	106.75	2.71	106.75	7.38	7.16
Reach 1	0.0910	T=200	10.40	103.66	103.97	104.72	11.08	2.69	106.66	2.69	106.66	6.26	6.35
Reach 1	0.0908	T=200	10.40	102.16	102.44	103.22	12.19	2.72	105.16	2.72	105.16	7.58	7.32
Reach 1	0.0894	T=200	10.40	102.08	102.39	103.15	11.34	2.69	105.08	2.69	105.08	6.55	6.55
Reach 1	0.0893	T=200	10.40	100.58	100.86	101.65	12.42	2.72	103.58	2.72	103.58	7.86	7.51
Reach 1	0.0876	T=200	10.40	100.50	100.80	101.57	11.38	2.70	103.50	2.70	103.50	6.61	6.59
Reach 1	0.0875	T=200	10.40	99.00	99.28	100.07	12.45	2.72	102.00	2.72	102.00	7.91	7.54
Reach 1	0.0845	T=200	10.40	98.85	99.17	99.92	10.72	2.68	101.85	2.68	101.85	5.85	6.02
Reach 1	0.0828	T=200	10.40	98.77	99.13	99.85	9.92	2.65	101.78	2.64	101.77	5.02	5.34
Reach 1	0.0812	T=200	10.40	98.70	99.07	99.77	9.31	2.63	101.70	2.63	101.70	4.42	4.87
Reach 1	0.0799	T=200	10.40	98.63	99.03	99.71	8.85	2.61	101.64	2.60	101.63	4.00	4.50
Reach 1	0.0781	T=200	10.40	98.05	98.47	99.15	9.01	2.62	101.09	2.60	101.07	4.14	4.64
Reach 1	0.0766	T=200	10.40	97.97	98.39	99.06	8.58	2.58	100.97	2.58	100.97	3.75	4.25
Reach 1	0.0751	T=200	10.40	97.90	98.32	98.96	8.19	2.58	100.90	2.58	100.90	3.42	4.04
Reach 1	0.0721	T=200	10.40	97.75	98.21	98.82	7.55	2.54	100.75	2.54	100.75	2.91	3.56

HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.0720	T=200	10.40	97.25	97.68	98.32	8.13	2.57	100.25	2.57	100.25	3.37	3.98
Reach 1	0.0690	T=200	10.40	97.10	97.56	98.16	7.49	2.54	100.10	2.54	100.10	2.86	3.53
Reach 1	0.0643	T=200	10.40	96.86	97.38	97.93	6.75	2.49	99.87	2.48	99.86	2.32	3.01
Reach 1	0.0591	T=200	10.40	96.60	97.16	97.67	6.21	2.44	99.60	2.44	99.60	1.97	2.66
Reach 1	0.0589	T=200	10.40	95.60	96.05	96.66	7.61	2.55	98.60	2.55	98.60	2.95	3.61
Reach 1	0.0545	T=200	10.40	95.37	95.88	96.44	6.87	2.50	98.38	2.49	98.37	2.41	3.09
Reach 1	0.0490	T=200	10.40	95.10	95.65	96.17	6.26	2.45	98.10	2.45	98.10	2.00	2.70
Reach 1	0.0430	T=200	10.40	94.80	95.39	95.86	5.84	2.41	97.80	2.41	97.80	1.74	2.43
Reach 1	0.0370	T=200	10.40	94.50	95.12	95.56	5.60	2.38	97.50	2.38	97.50	1.60	2.28
Reach 1	0.0368	T=200	10.40	92.50	92.91	93.57	8.39	2.59	95.50	2.59	95.50	3.59	4.17
Reach 1	0.0269	T=200	10.40	92.00	92.52	93.06	6.63	2.48	95.00	2.48	95.00	2.24	2.94
Reach 1	0.0179	T=200	10.40	91.54	92.16	92.63	5.85	2.41	94.57	2.38	94.54	1.74	2.41
Reach 1	0.0169	T=200	10.40	91.50	92.09	92.57	5.84	2.41	94.50	2.41	94.50	1.74	2.43
Reach 1	0.0125	T=200	10.40	91.28	91.90	92.35	5.65	2.38	94.28	2.38	94.28	1.63	2.30
Reach 1	0.0069	T=200	10.40	91.00	91.63	92.07	5.50	2.37	94.00	2.37	94.00	1.54	2.22
Reach 1	0.0032	T=200	10.40	90.81	91.50	91.92	5.33	2.33	93.83	2.31	93.81	1.45	2.06
Reach 1	0.0000	T=200	10.40	90.66	91.32	91.74	5.37	2.34	93.66	2.34	93.66	1.47	2.12

VERIFICA IDRAULICA

RIO 6 - Tratto di valle

FASE FINALE

Legenda tabella Allegato

River Sta = Sezioni dell'alveo studiato.

Le sezion idelle verifiche di hec ras corrispondono alle sezioni individuate negli elaborati grafici di autocad

Profile = Profilo con assegnato periodo di ritorno.

Q total = Portata di progetto per assegnato periodo di ritorno.

Min Ch El = quota del fondo alveo.

W.S. Elev = quota del pelo libero.

LOB Elev = quota dell'argine in sponda sinistra.

ROB Elev = quota dell'argine in sponda destra.

L. Freeboard = Franco di sicurezza in sponda sinistra.

R. Freeboard = Franco di sicurezza in sponda destra.

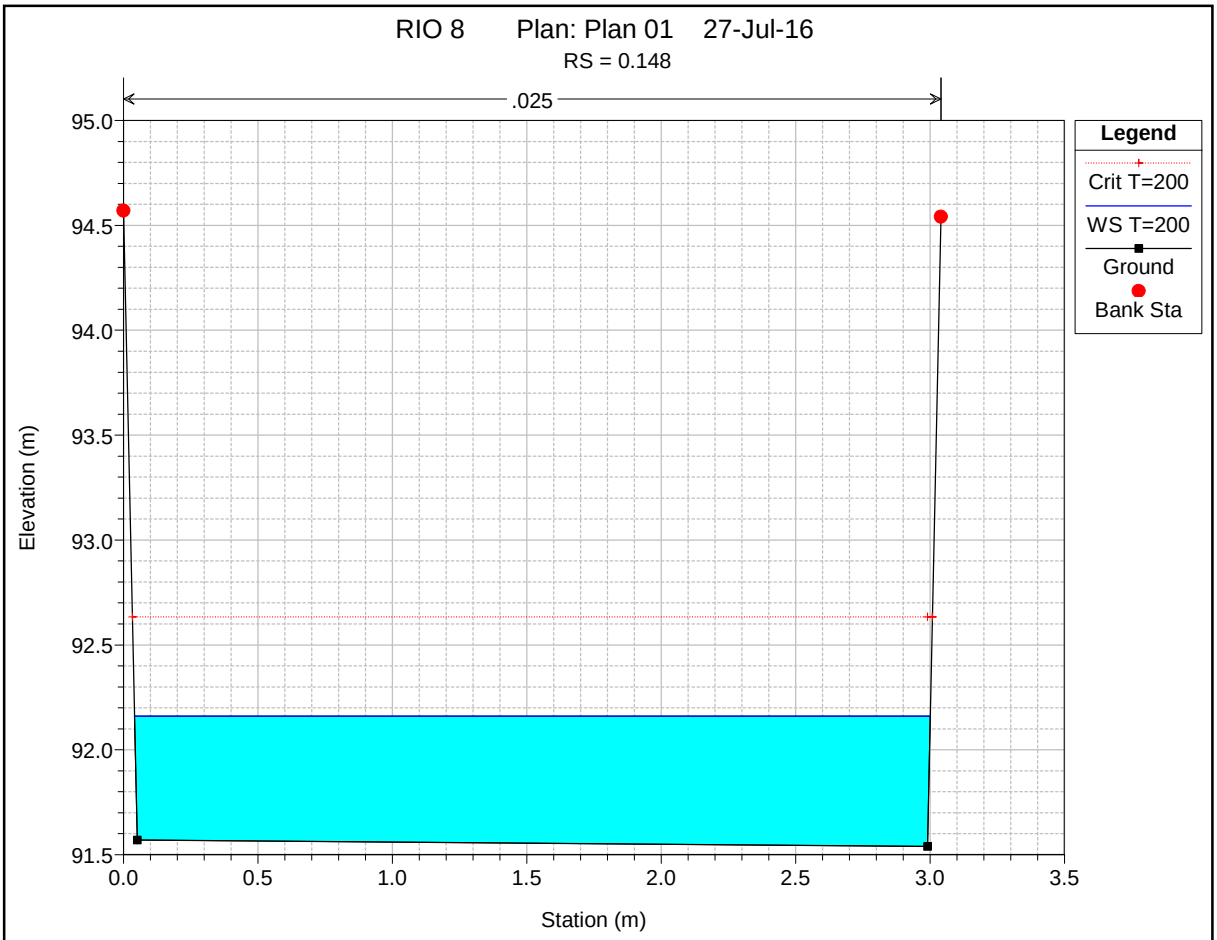
Crit. W.S. = profondità critica per assegnato periodo di ritorno.

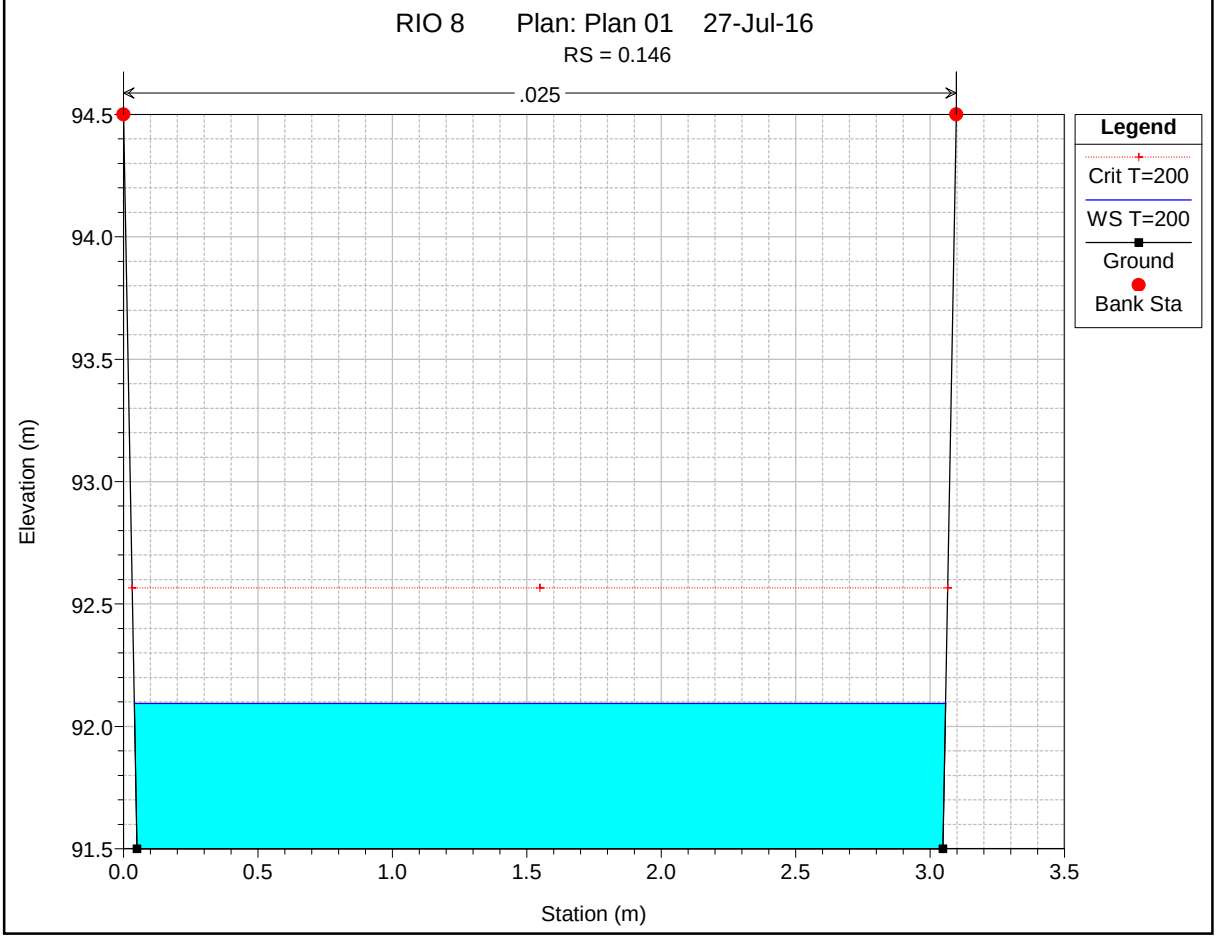
Vel Chnl = Velocità della corrente nel canale.

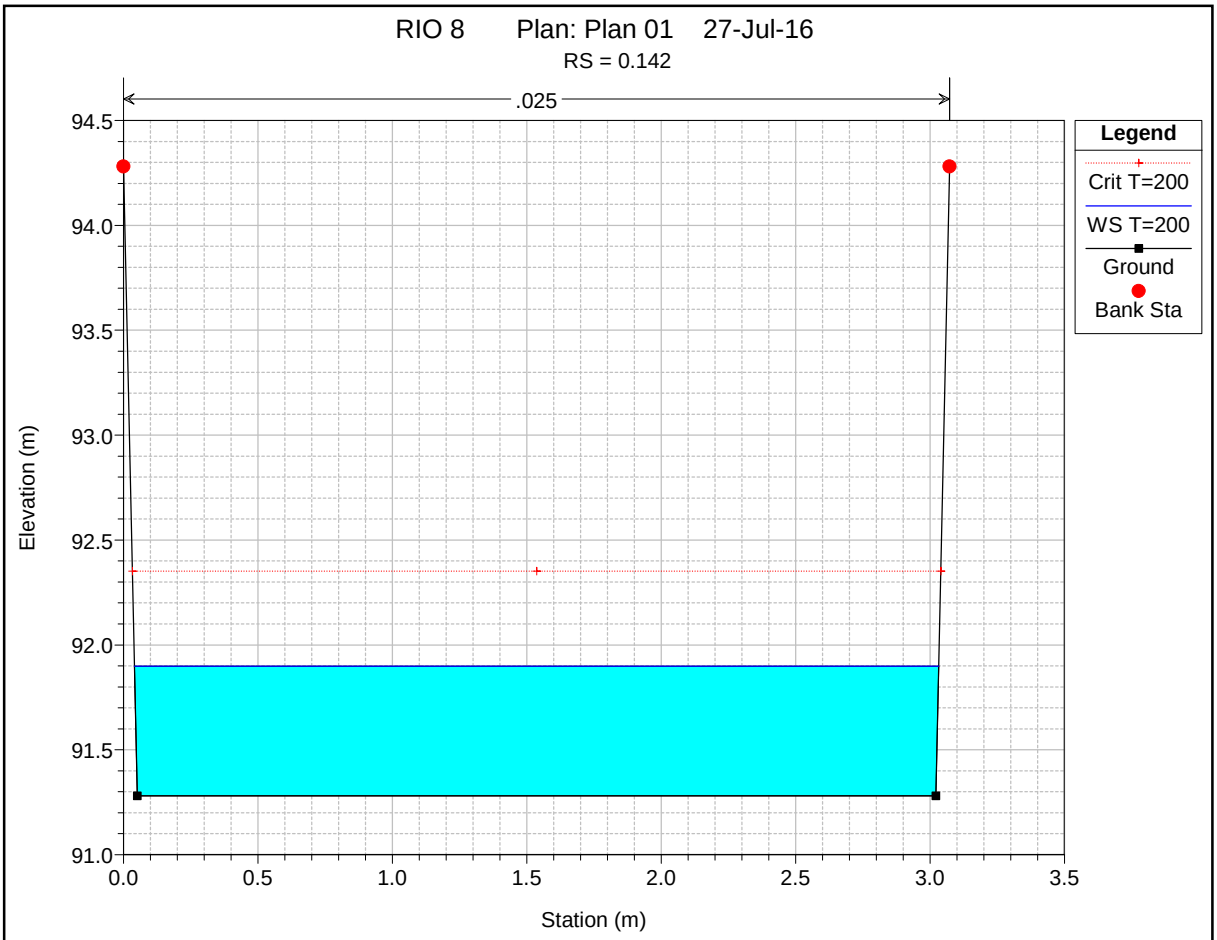
Froude = n° di froude della corrente.

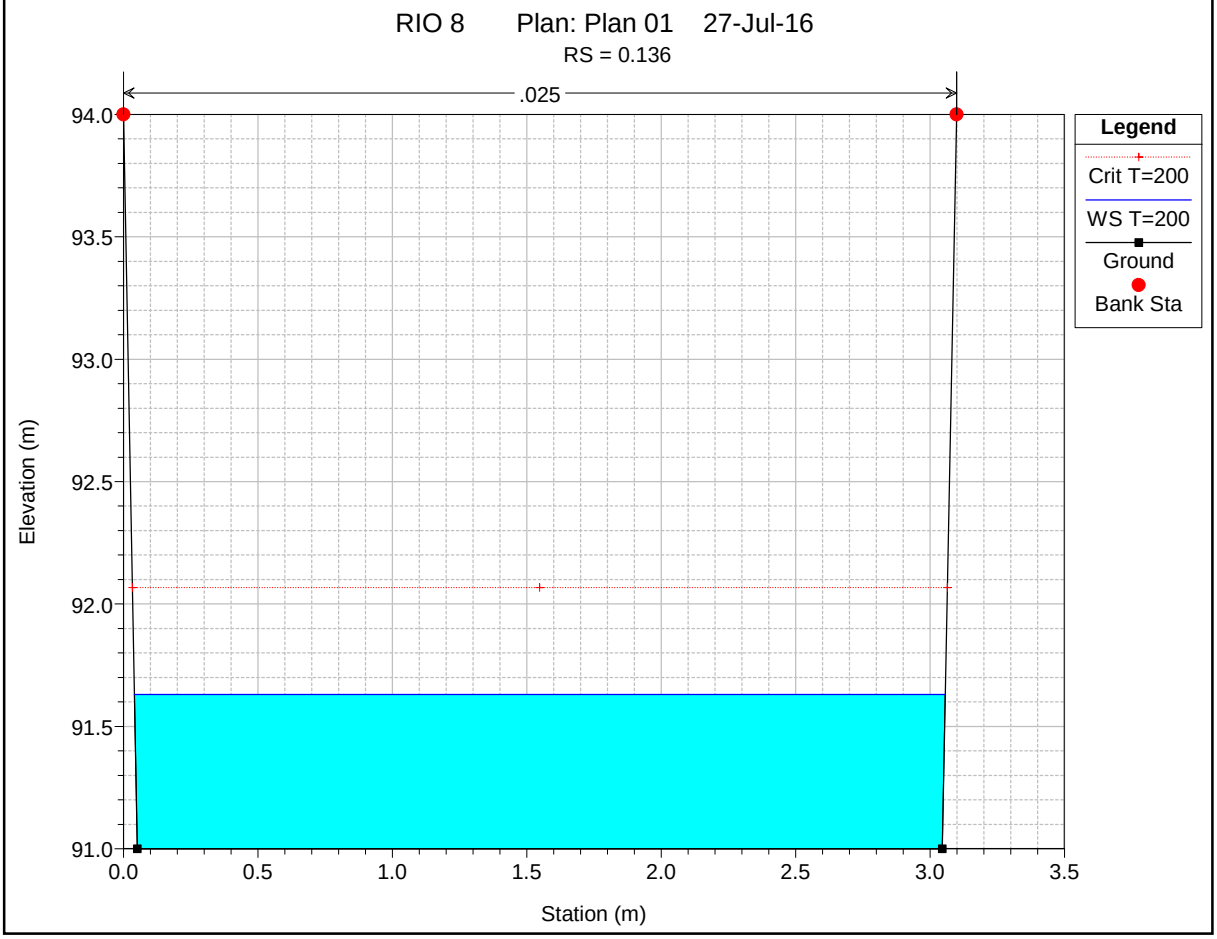
Vel. Head = $U^2/2g$.

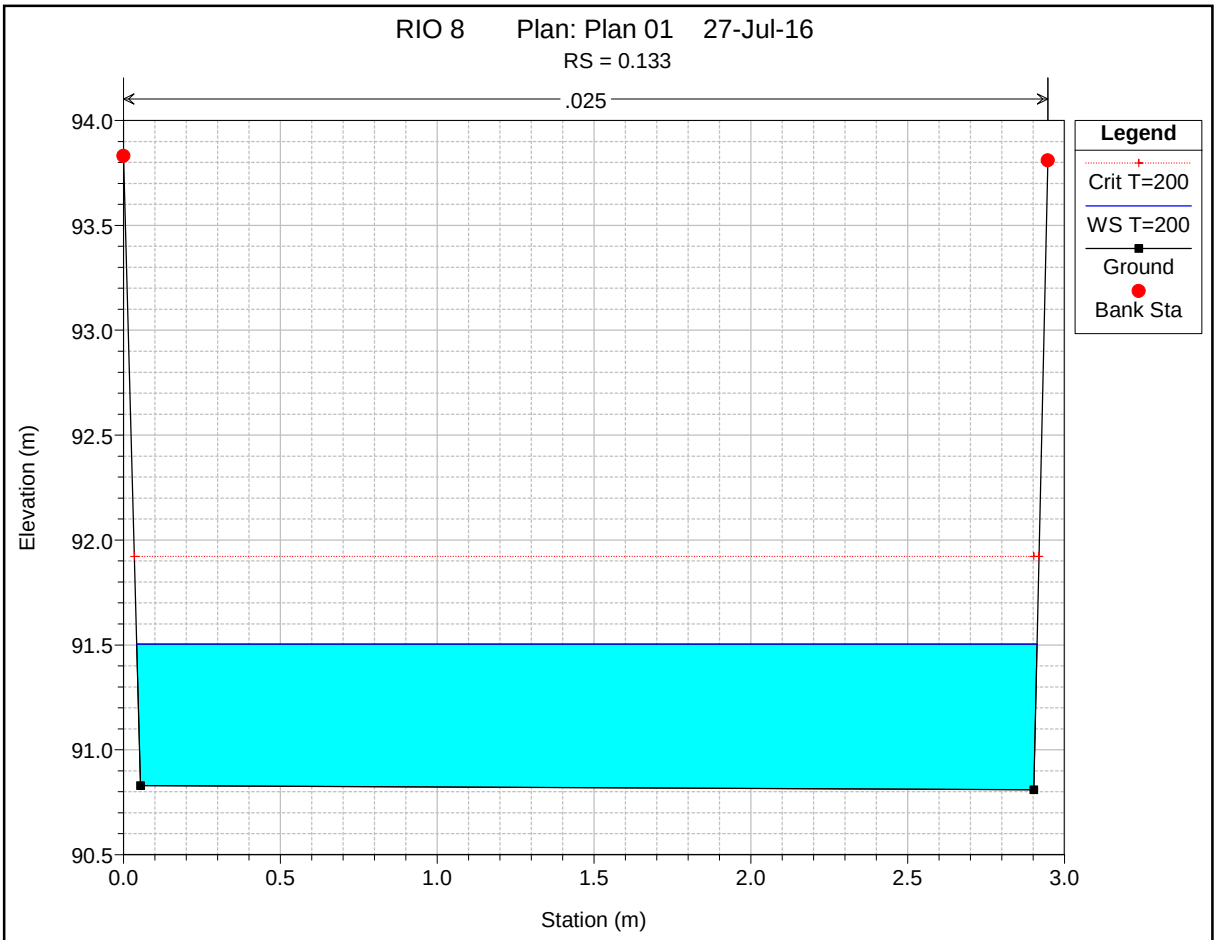
STATO di PROGETTO

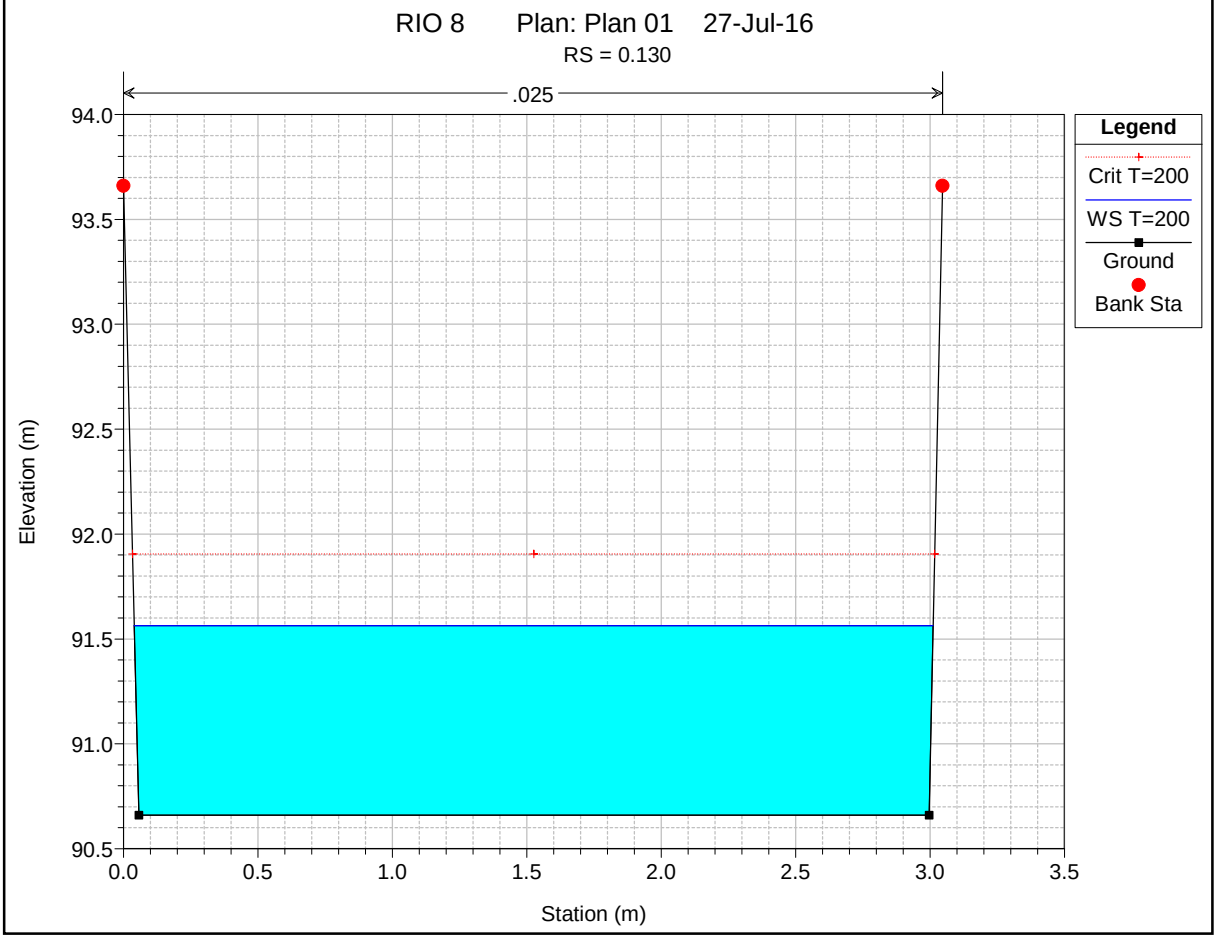

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.148
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
95.0
94.5
94.0
93.5
93.0
92.5
92.0
91.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

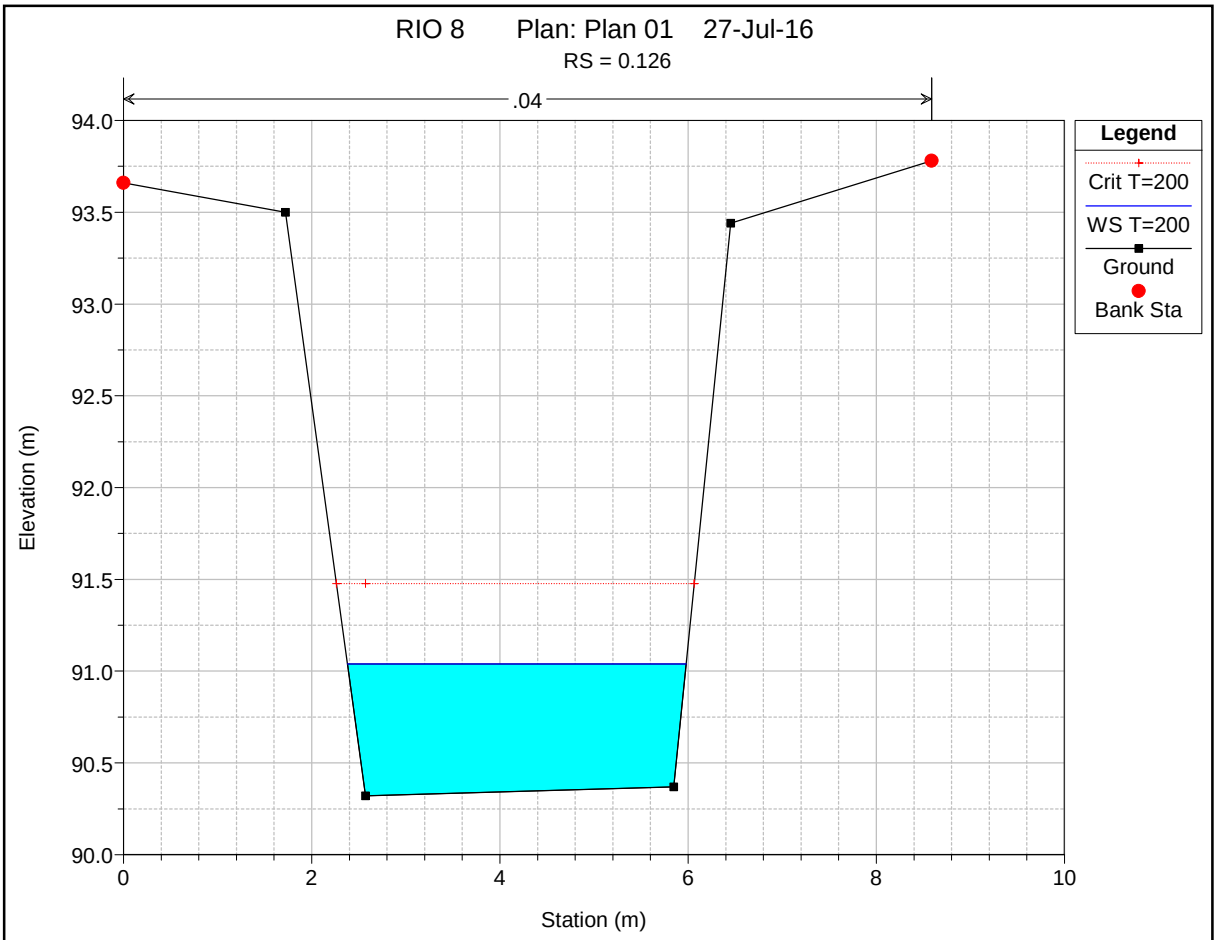

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.146
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.5
94.0
93.5
93.0
92.5
92.0
91.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

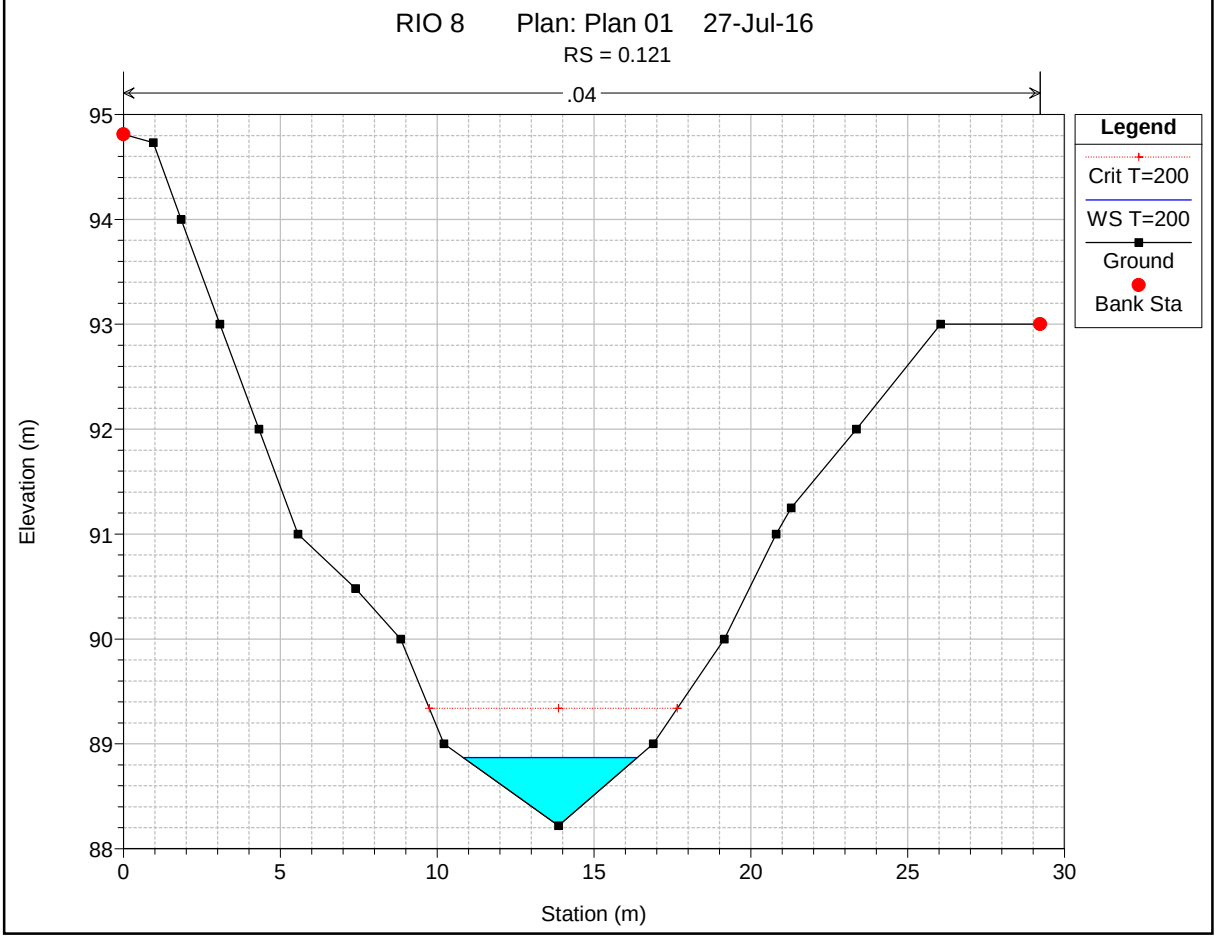

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.142
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.5
94.0
93.5
93.0
92.5
92.0
91.5
91.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

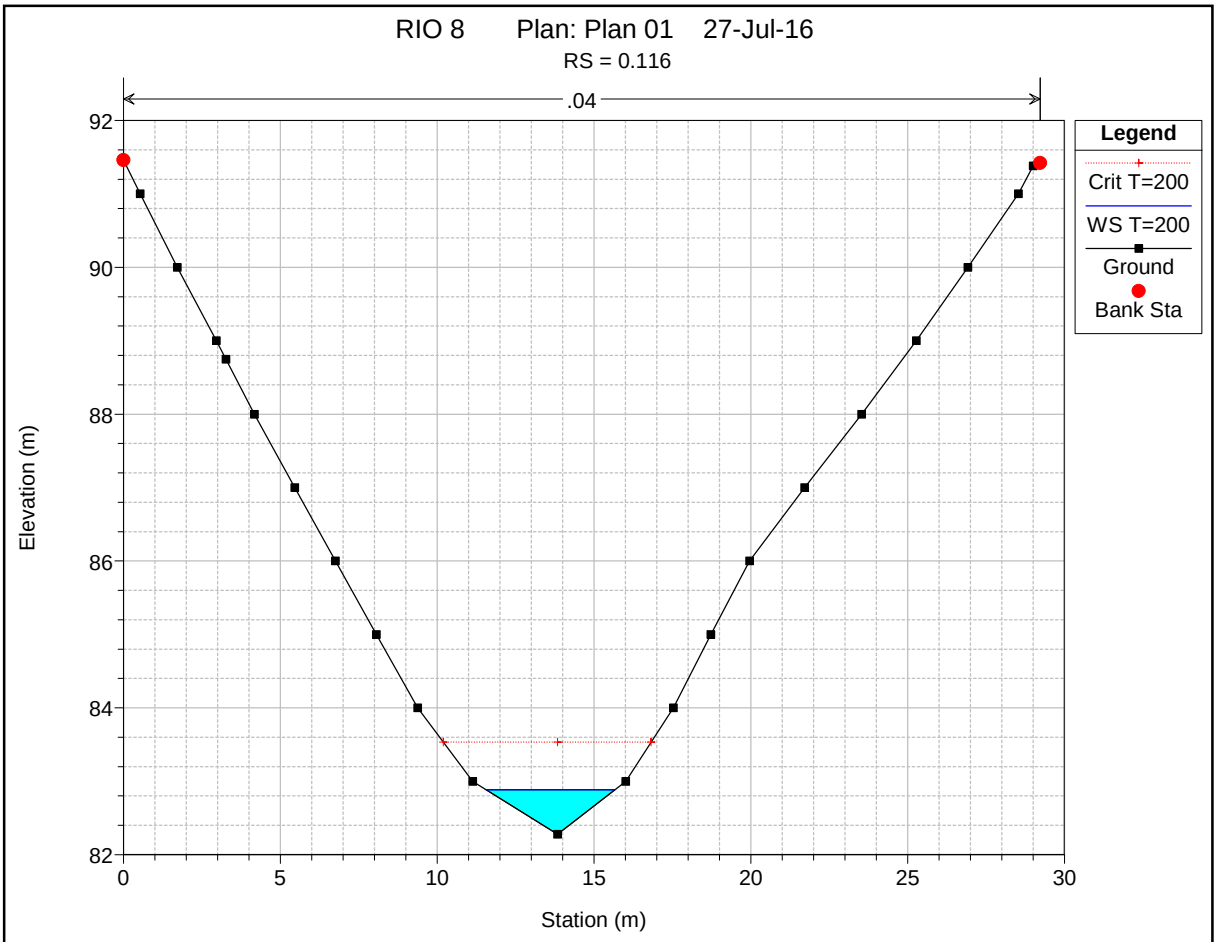

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.136
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

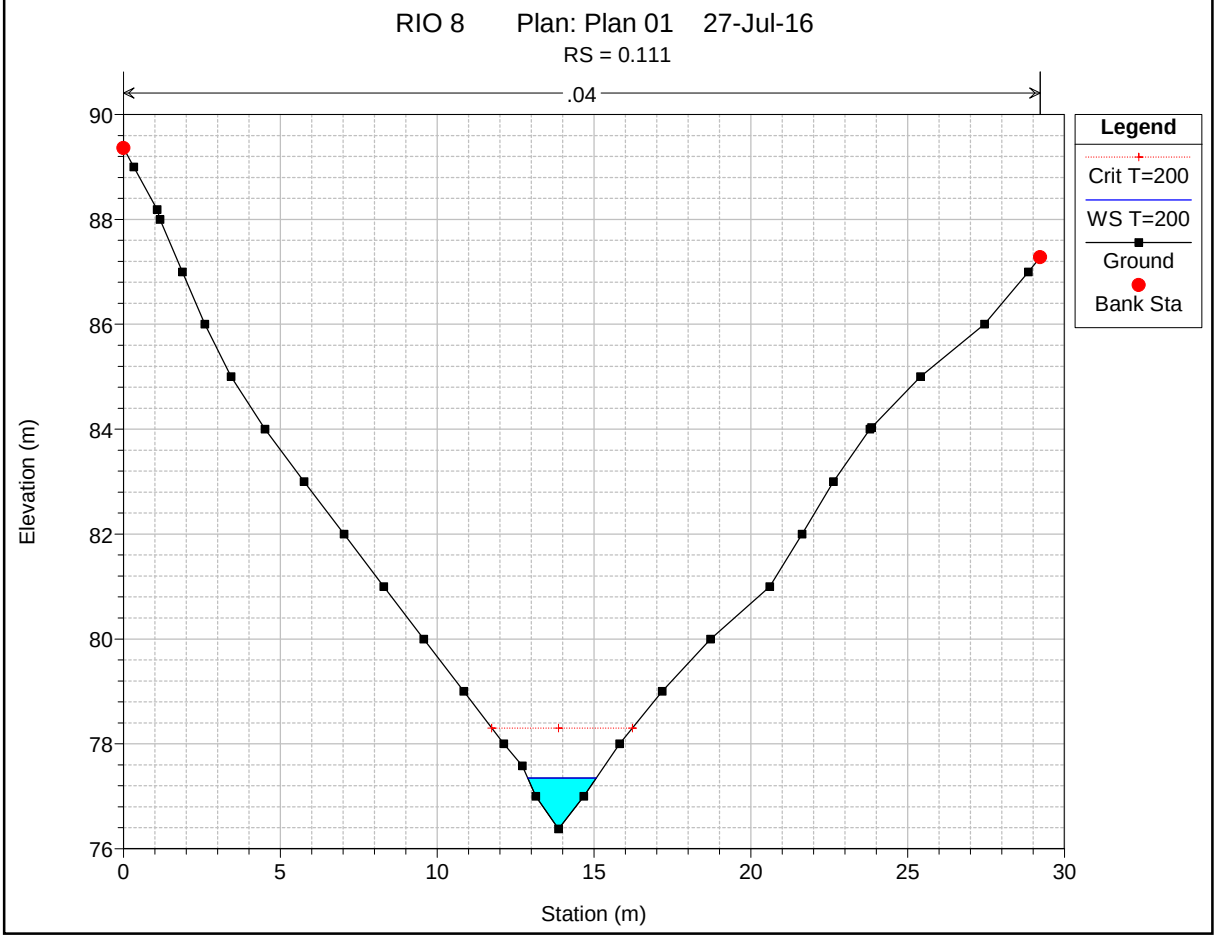

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.133
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
90.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0

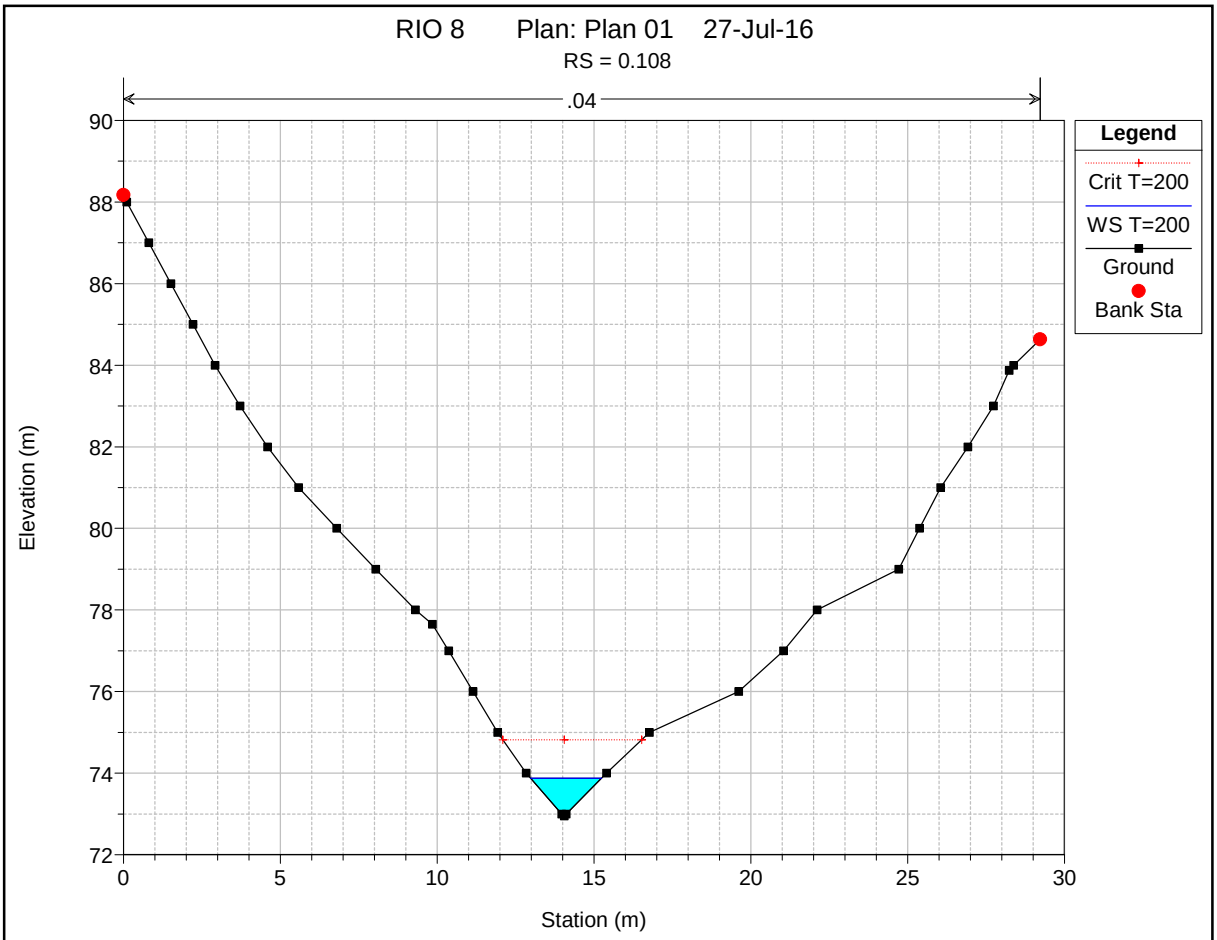

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.130
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
90.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

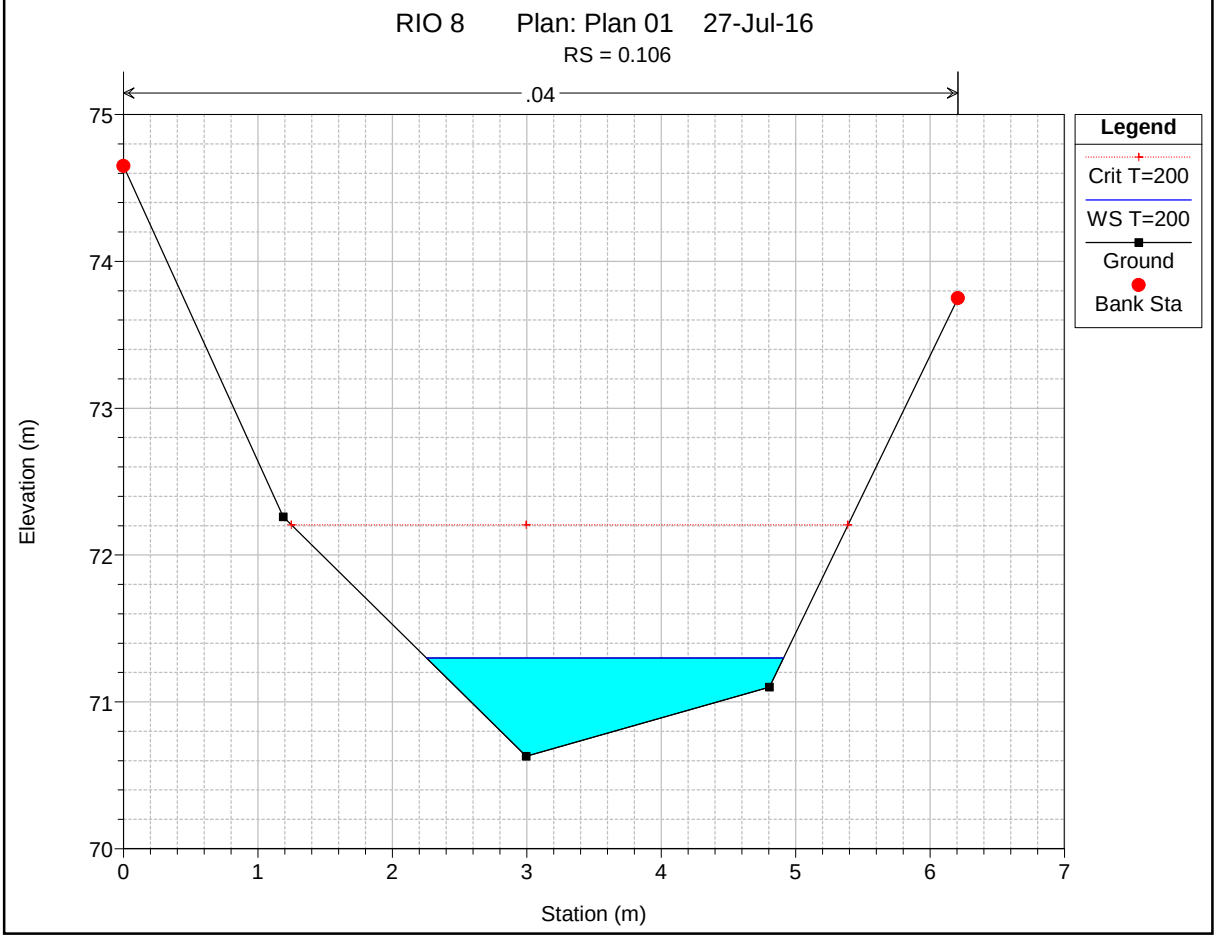

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.126
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
94.0
93.5
93.0
92.5
92.0
91.5
91.0
90.5
90.0
0
2
4
6
8
10

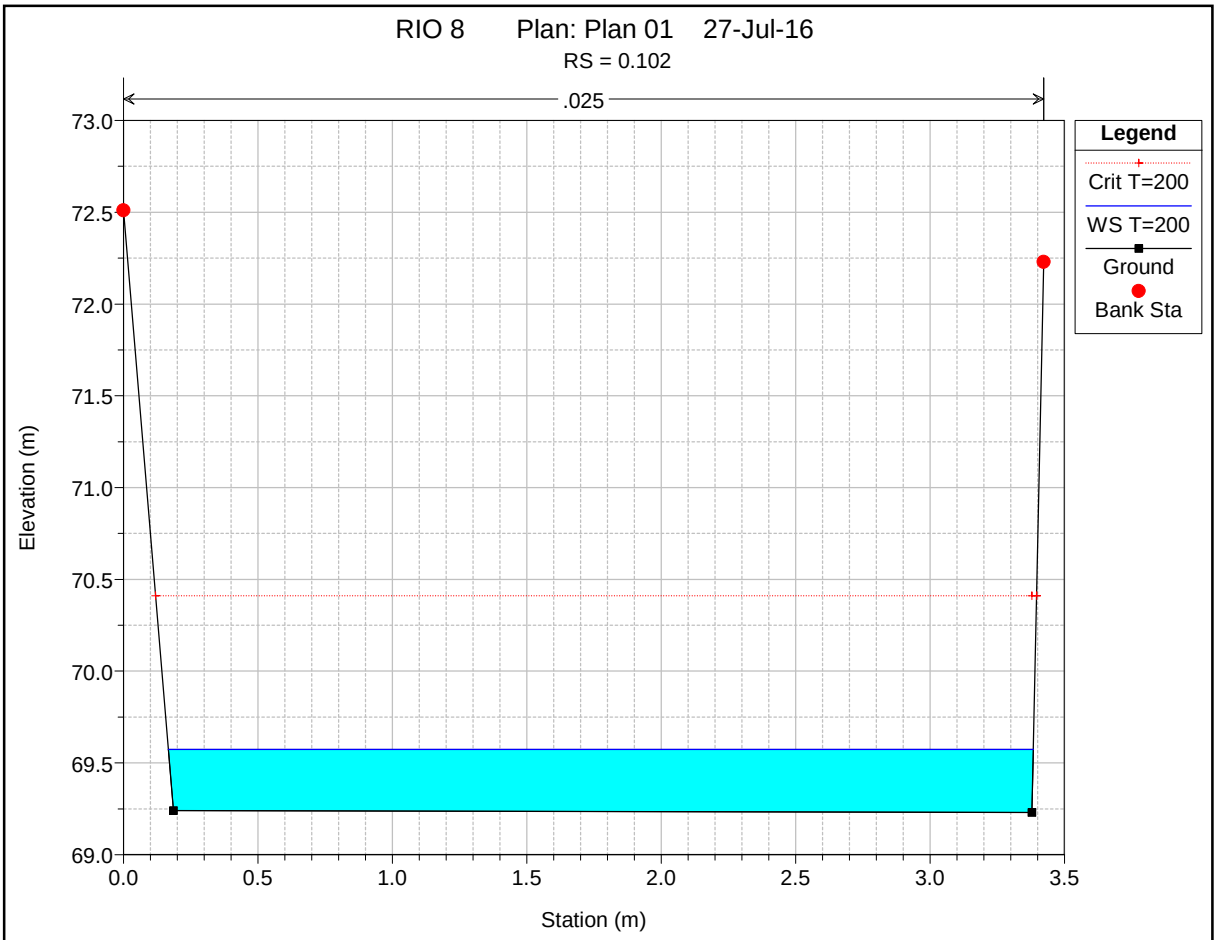

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.121
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
95
94
93
92
91
90
89
88
0
5
10
15
20
25
30

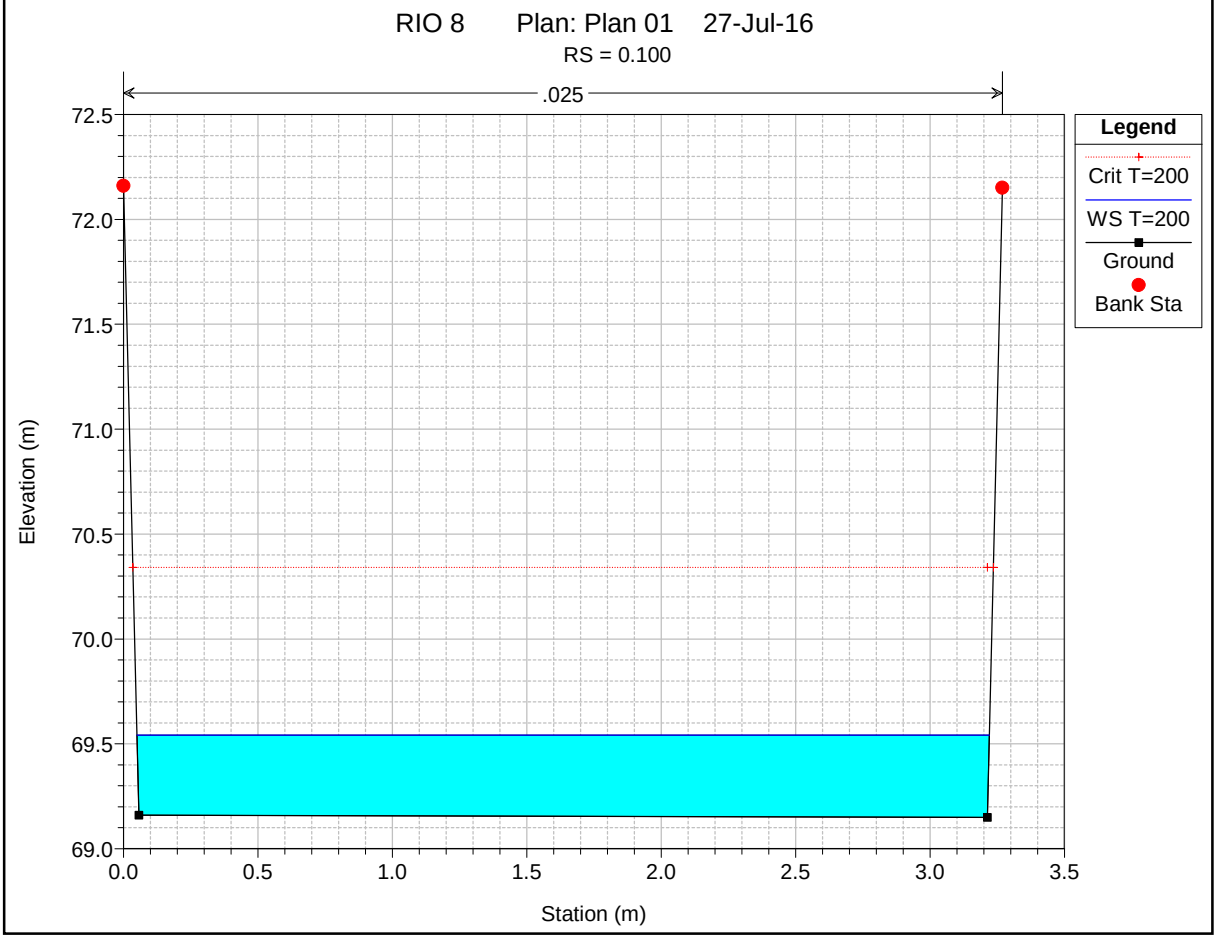

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.116
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
92
90
88
86
84
82
0
5
10
15
20
25
30

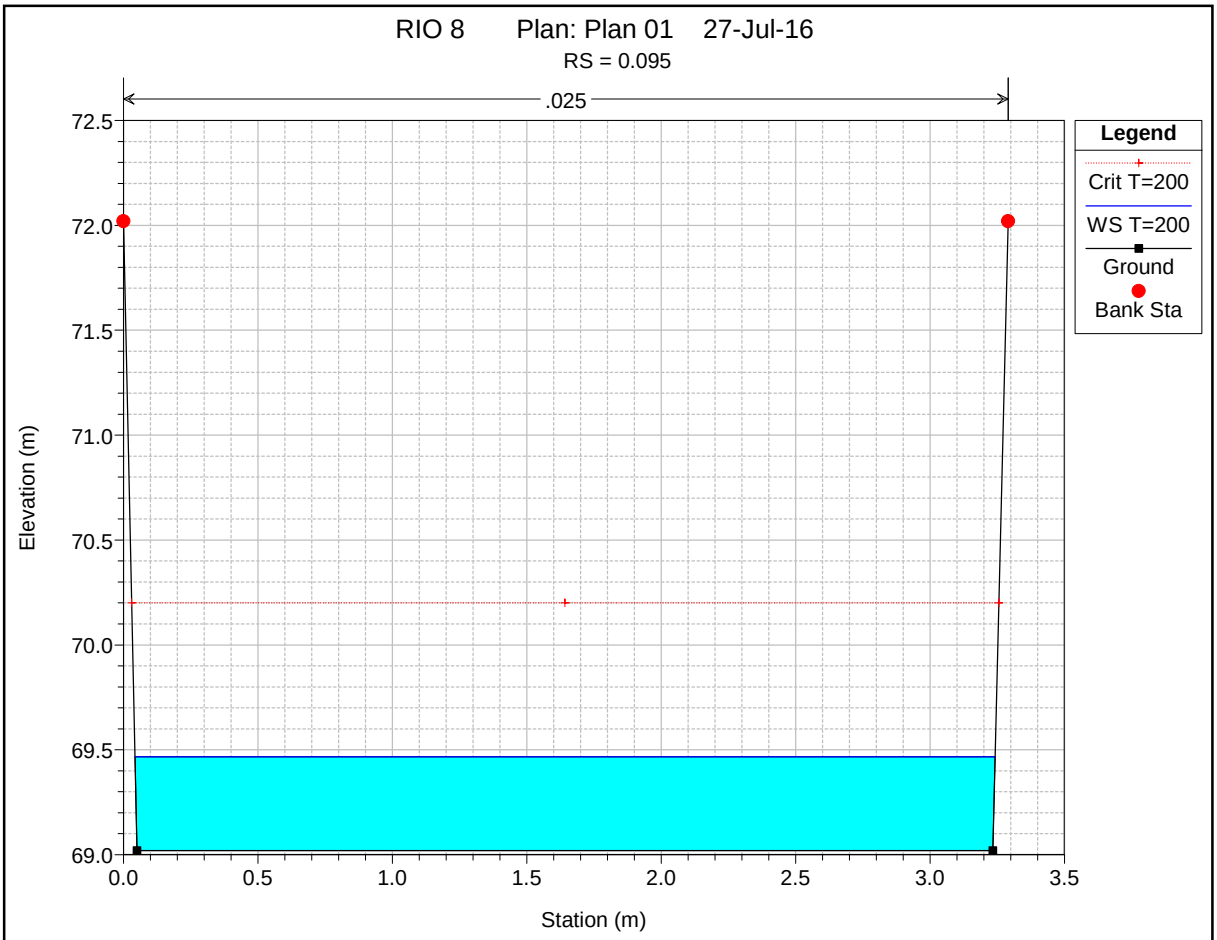

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.111
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
90
88
86
84
82
80
78
76
0
5
10
15
20
25
30

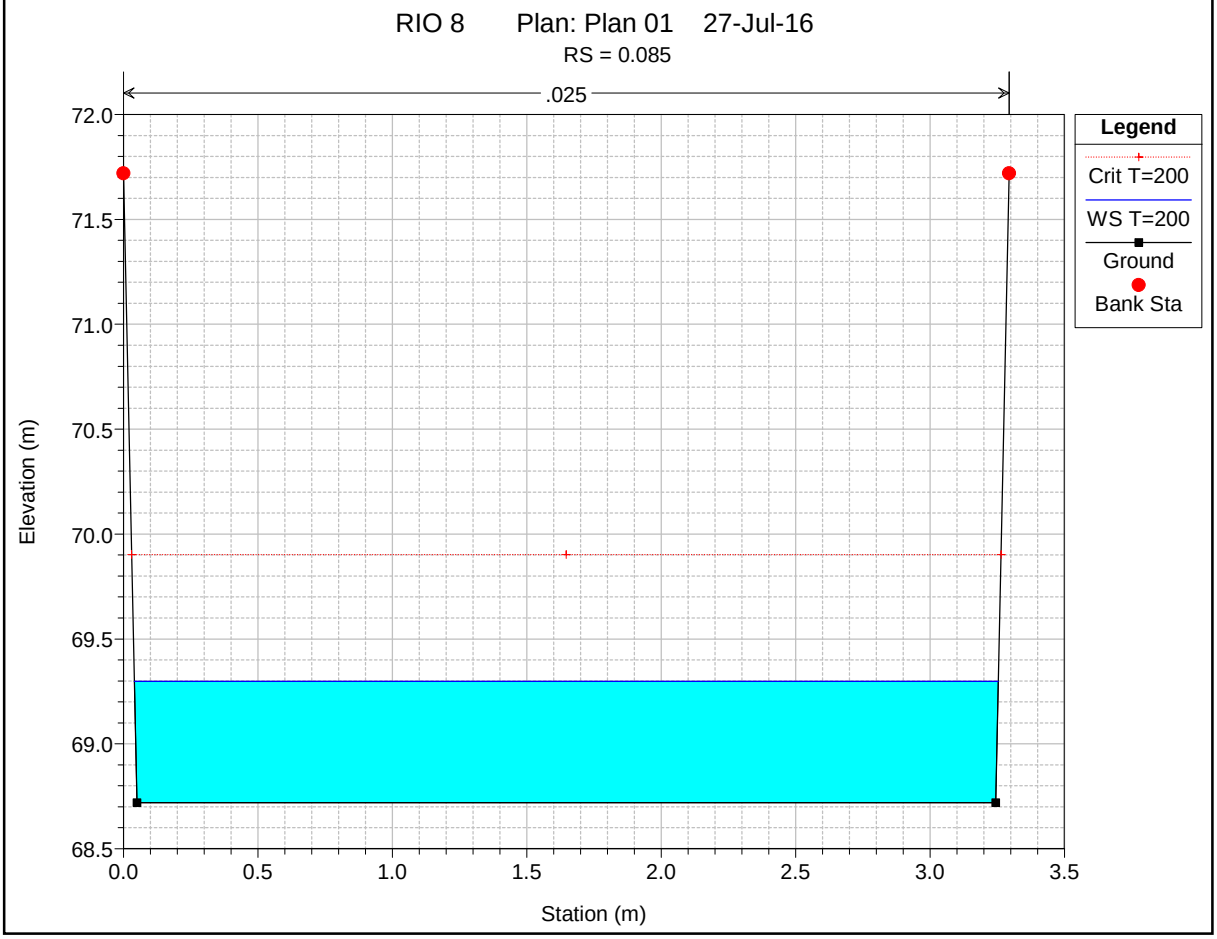

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.108
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
90
88
86
84
82
80
78
76
74
72
0
5
10
15
20
25
30

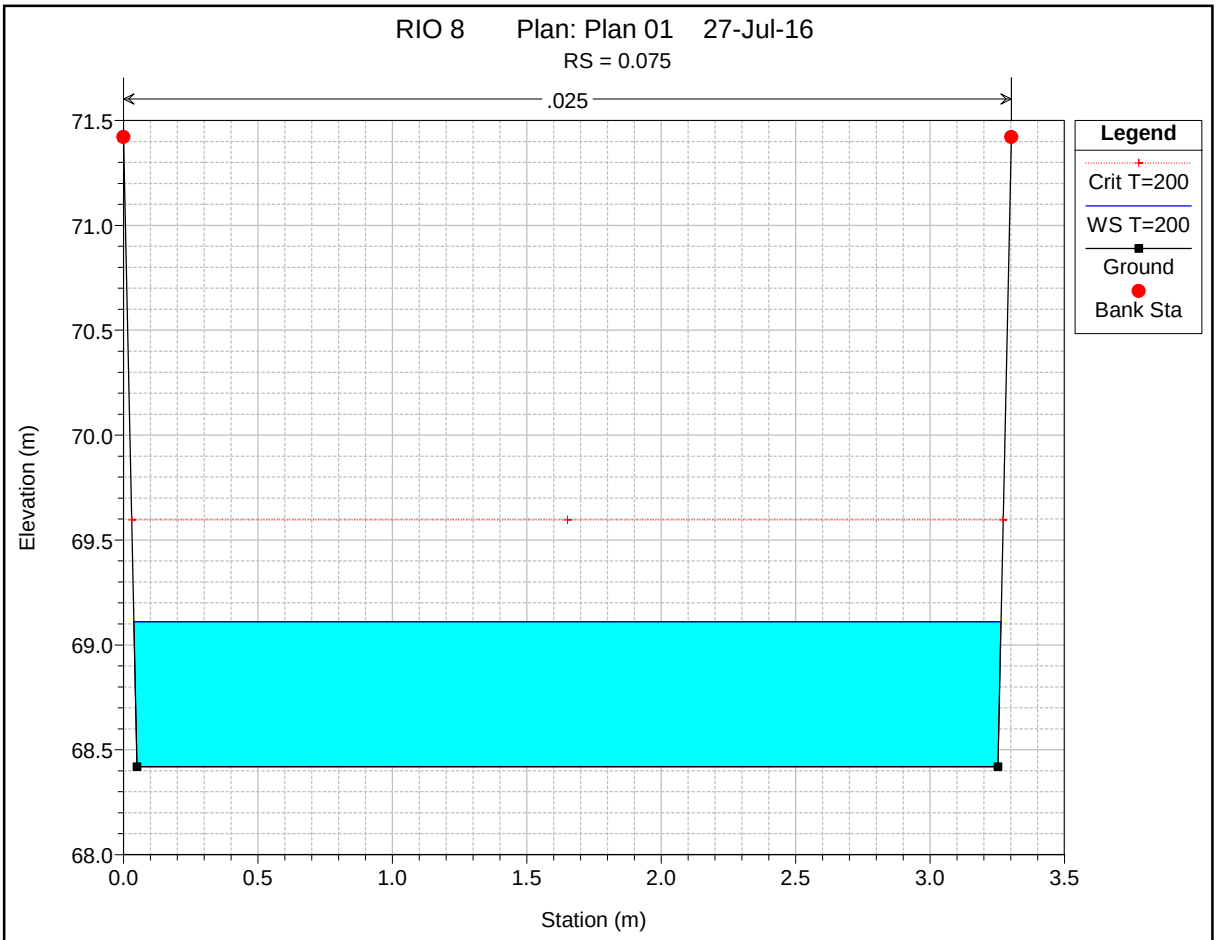

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.106
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
75
74
73
72
71
70
0
1
2
3
4
5
6
7

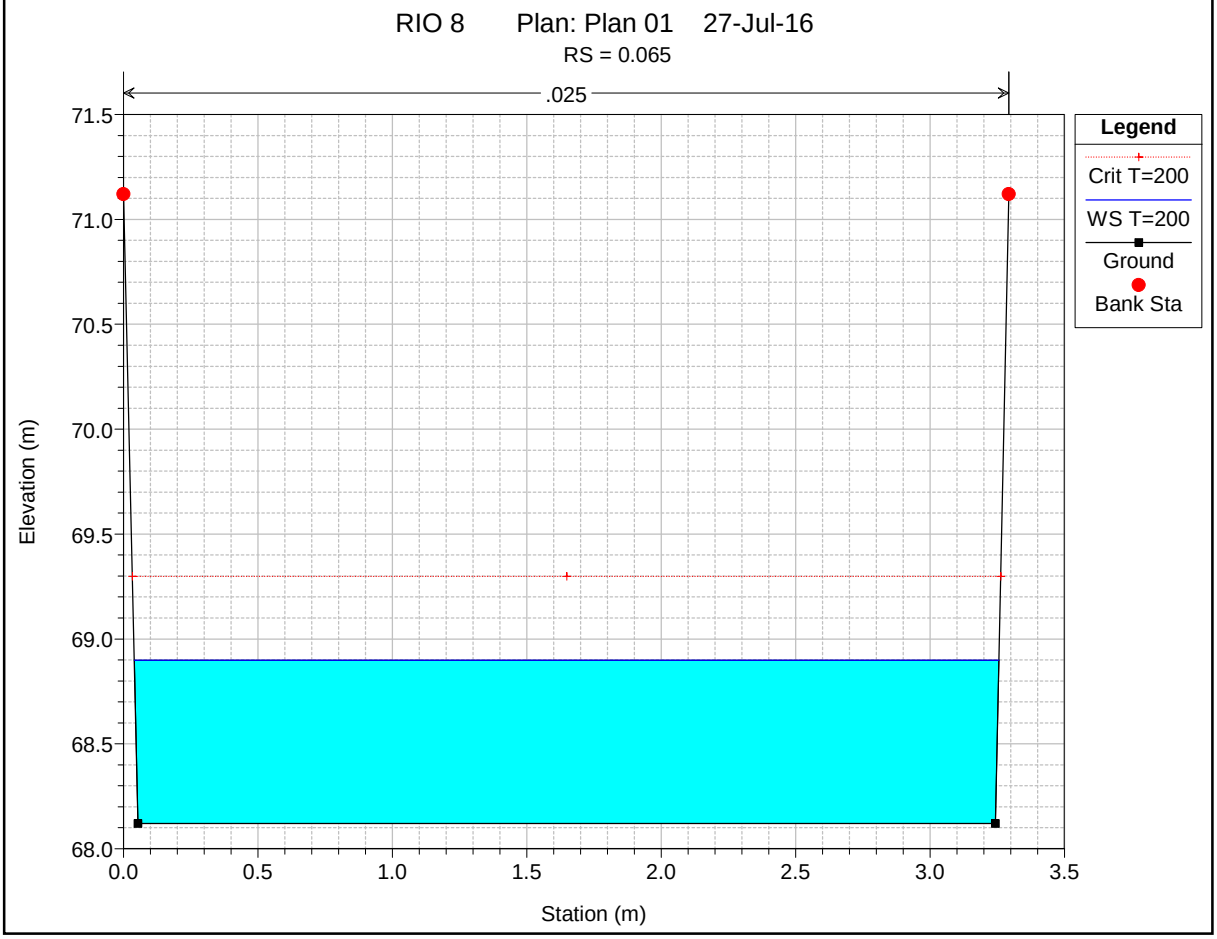

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.102
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
73.0
72.5
72.0
71.5
71.0
70.5
70.0
69.5
69.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

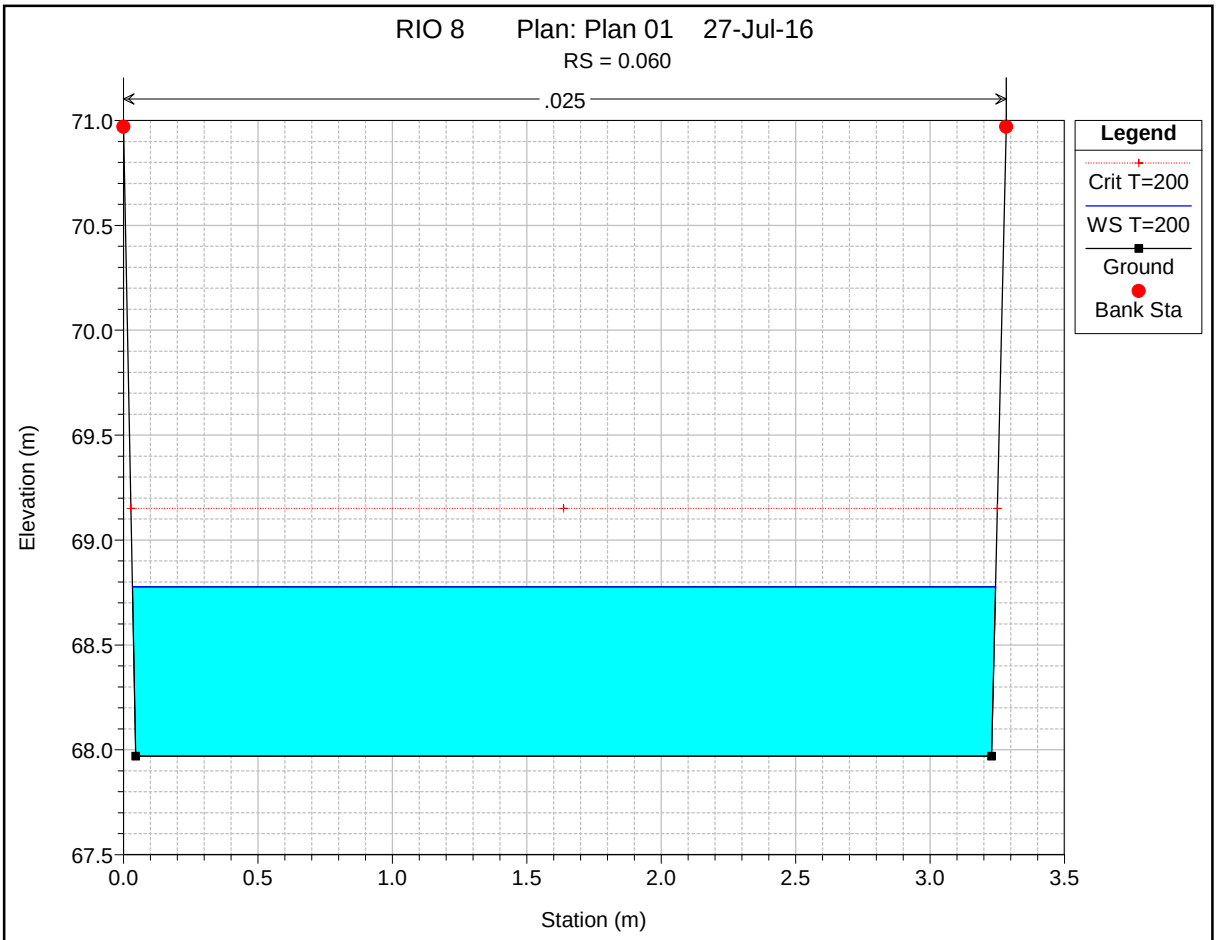

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.100
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
72.5
72.0
71.5
71.0
70.5
70.0
69.5
69.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

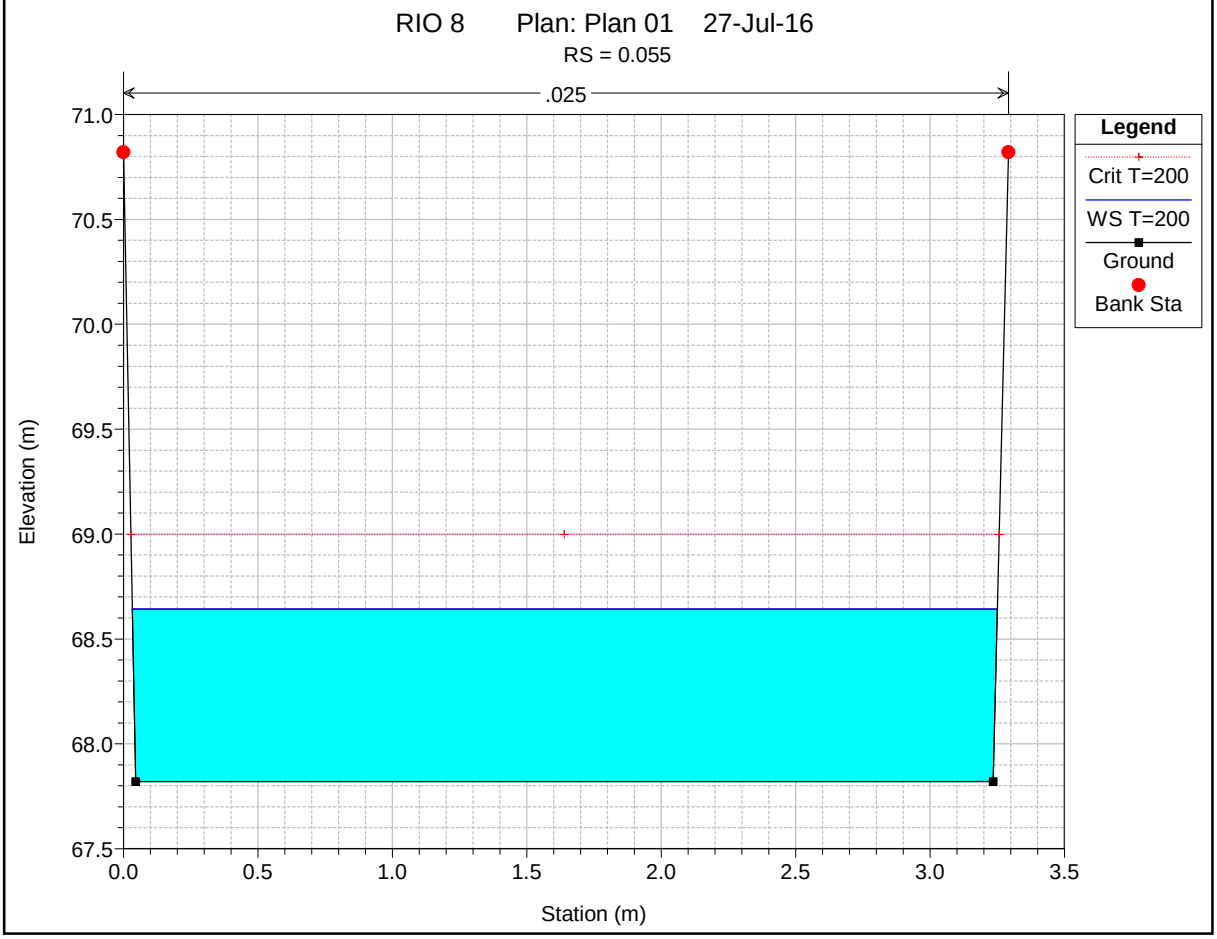

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.095
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
72.5
72.0
71.5
71.0
70.5
70.0
69.5
69.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

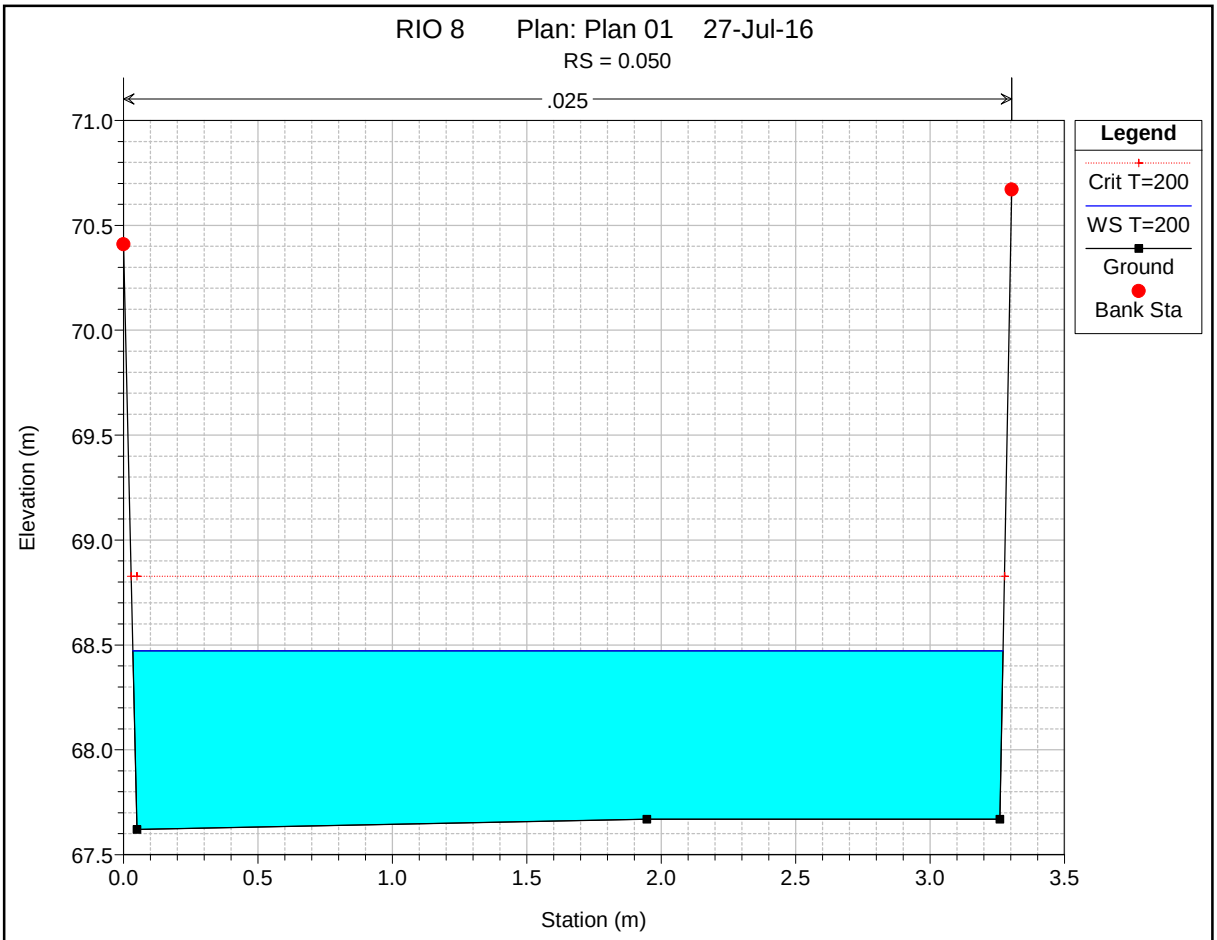

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.085
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
72.0
71.5
71.0
70.5
70.0
69.5
69.0
68.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

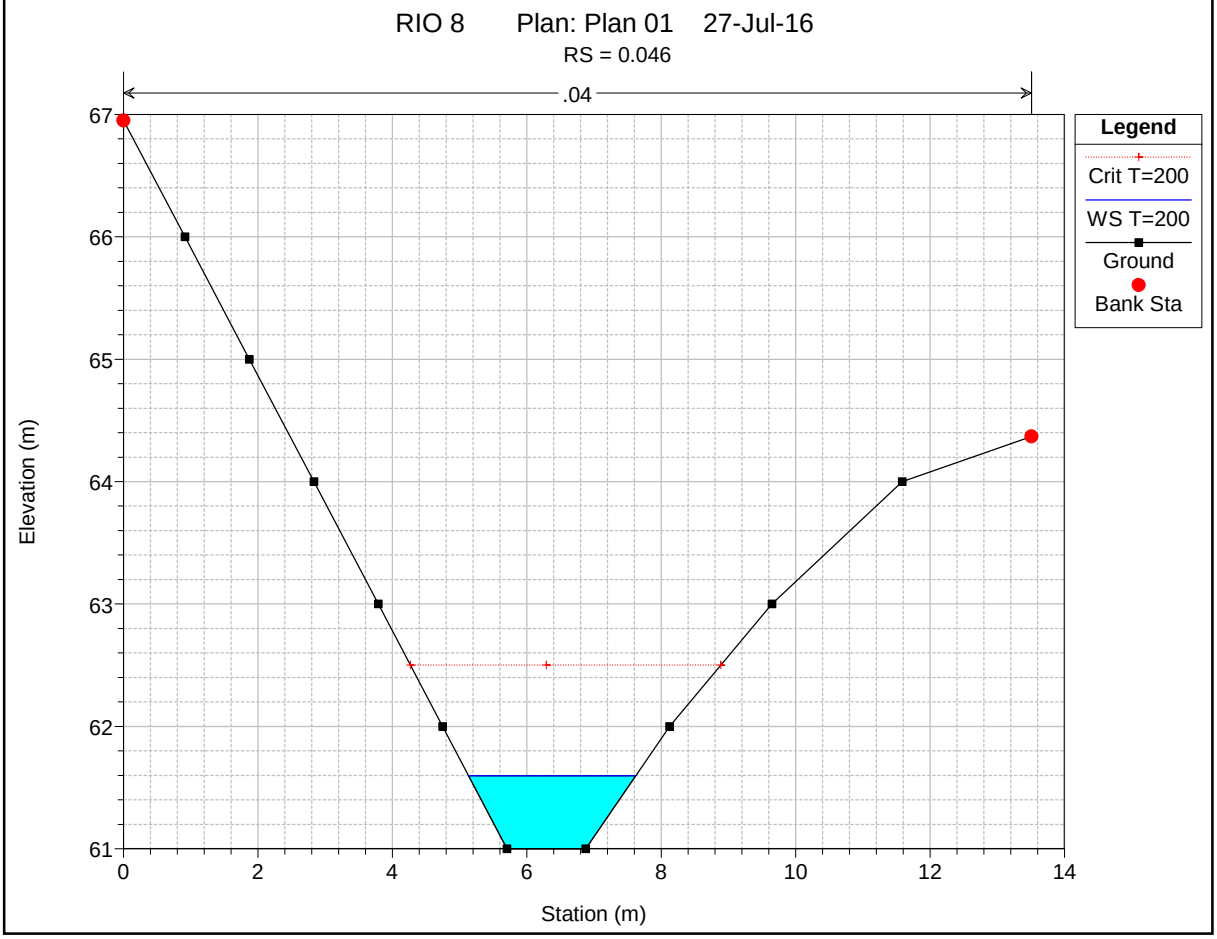

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.075
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
71.5
71.0
70.5
70.0
69.5
69.0
68.5
68.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

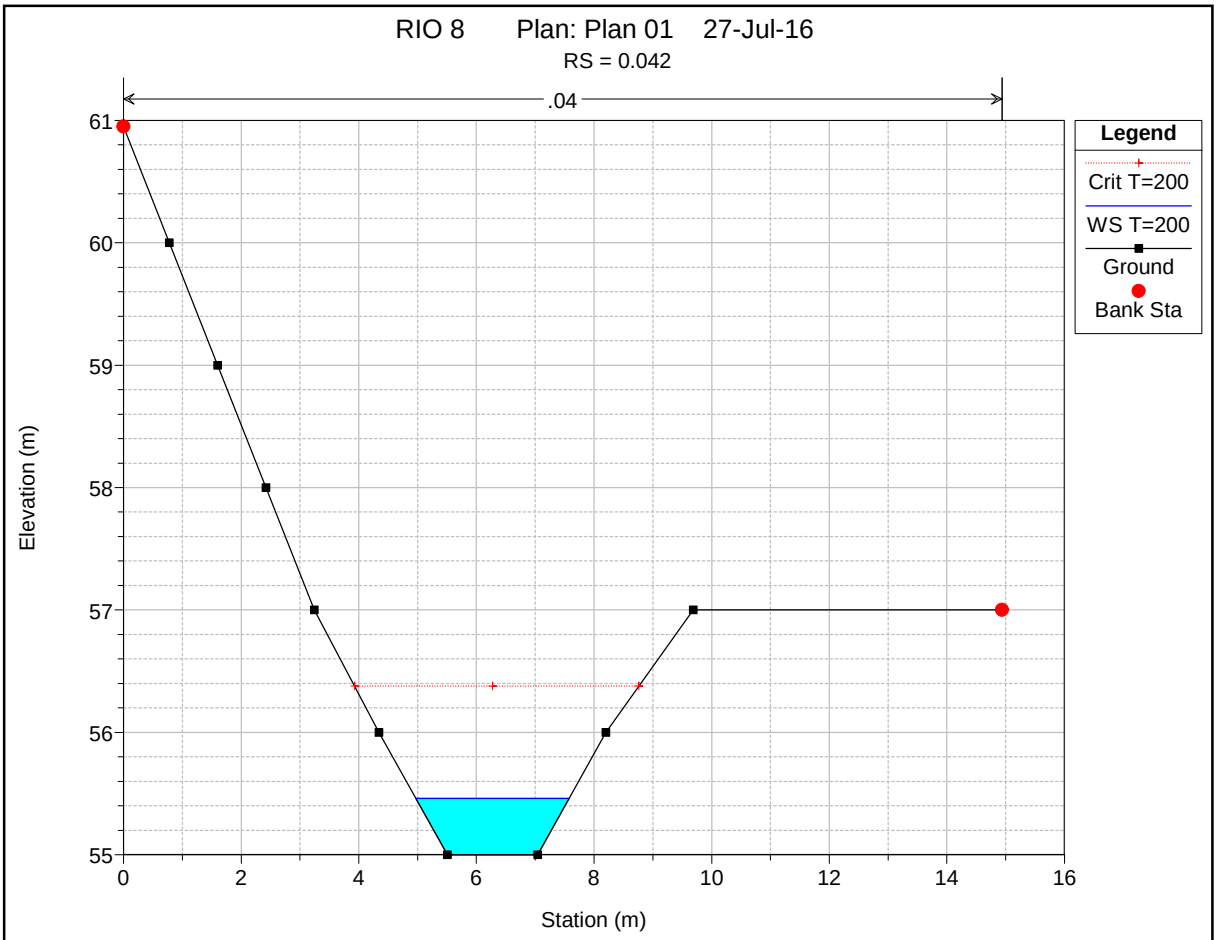

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.065
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
71.5
71.0
70.5
70.0
69.5
69.0
68.5
68.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

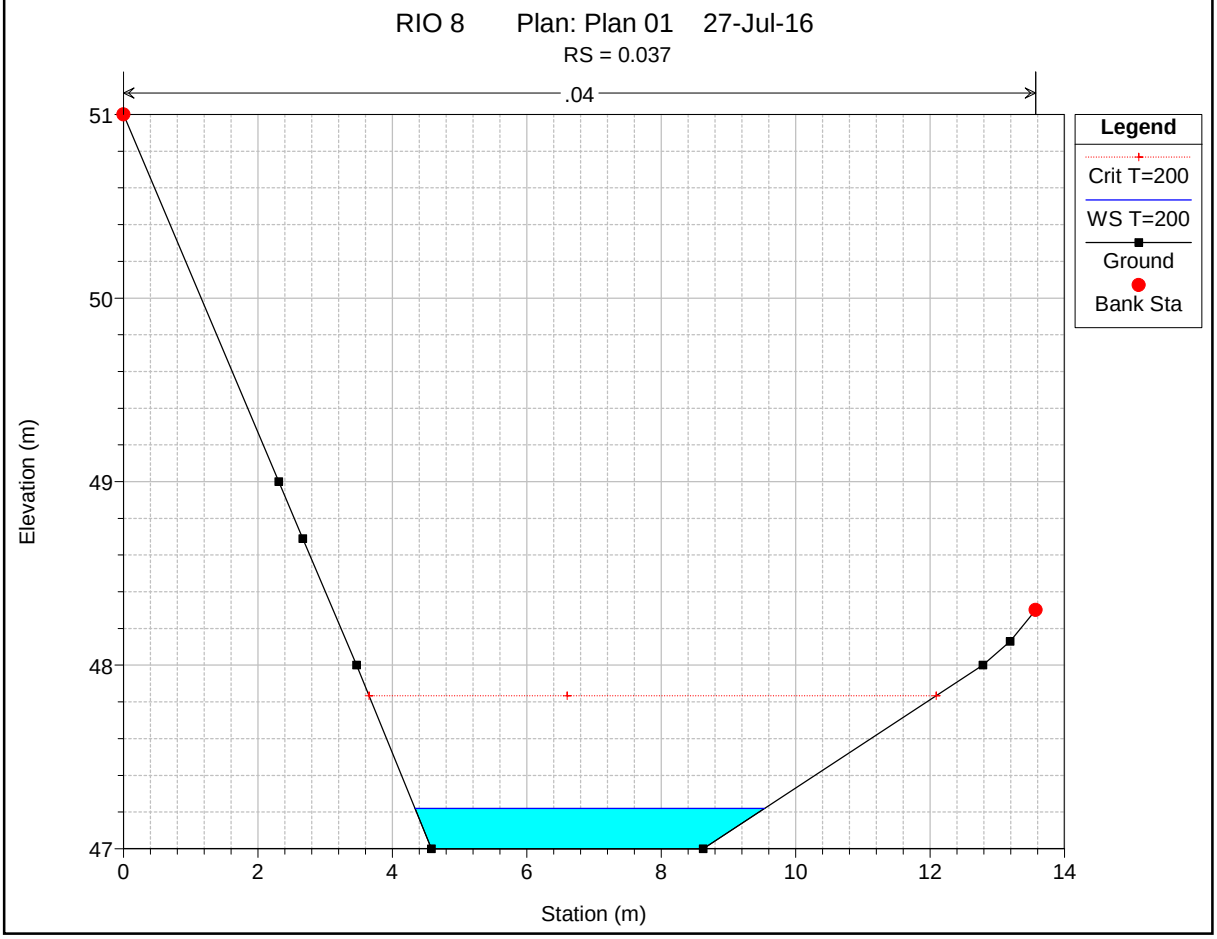

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.060
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
71.0
70.5
70.0
69.5
69.0
68.5
68.0
67.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

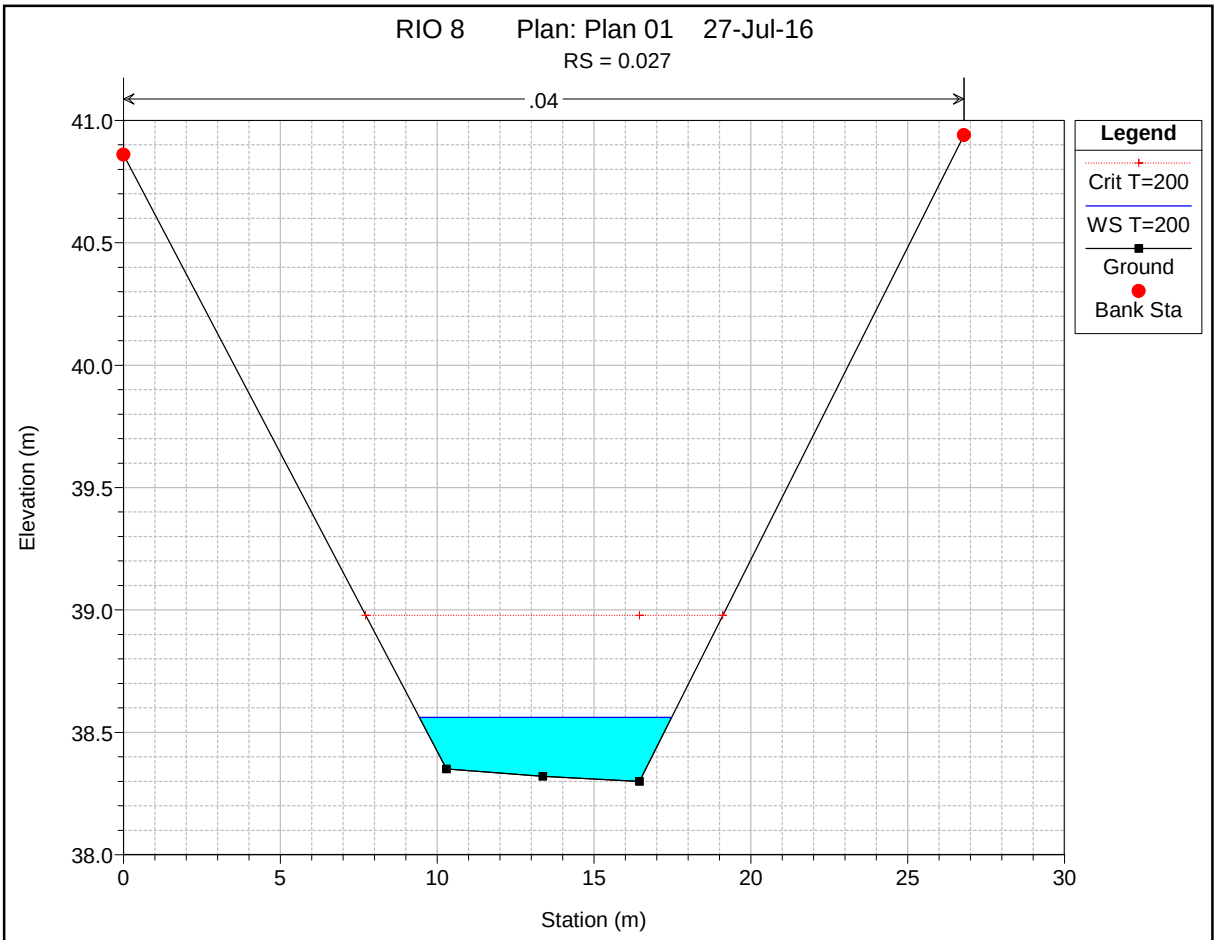

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.055
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
71.0
70.5
70.0
69.5
69.0
68.5
68.0
67.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

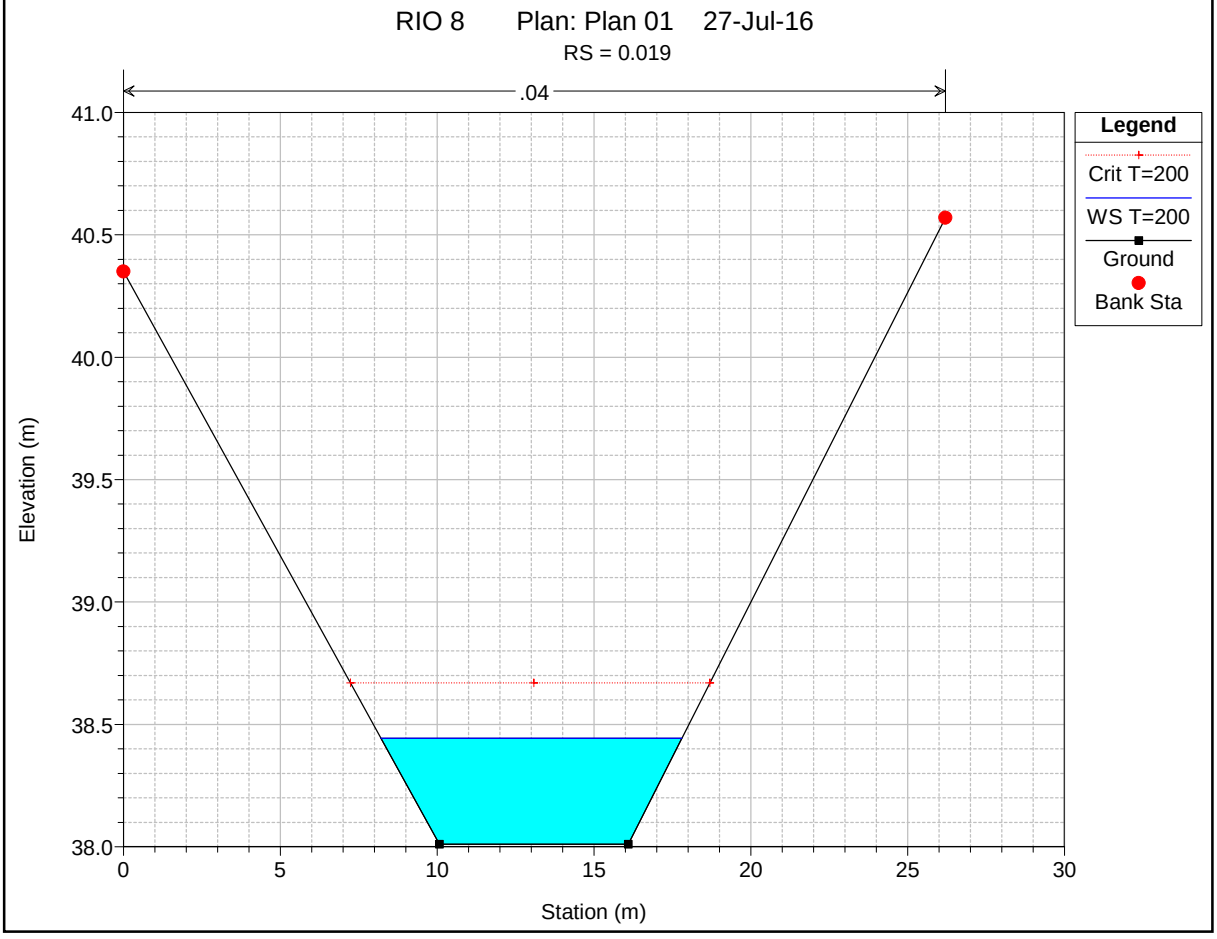

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.050
.025
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
71.0
70.5
70.0
69.5
69.0
68.5
68.0
67.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.046
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
67
66
65
64
63
62
61
0
2
4
6
8
10
12
14


RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.042
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
61
60
59
58
57
56
55
0
2
4
6
8
10
12
14
16

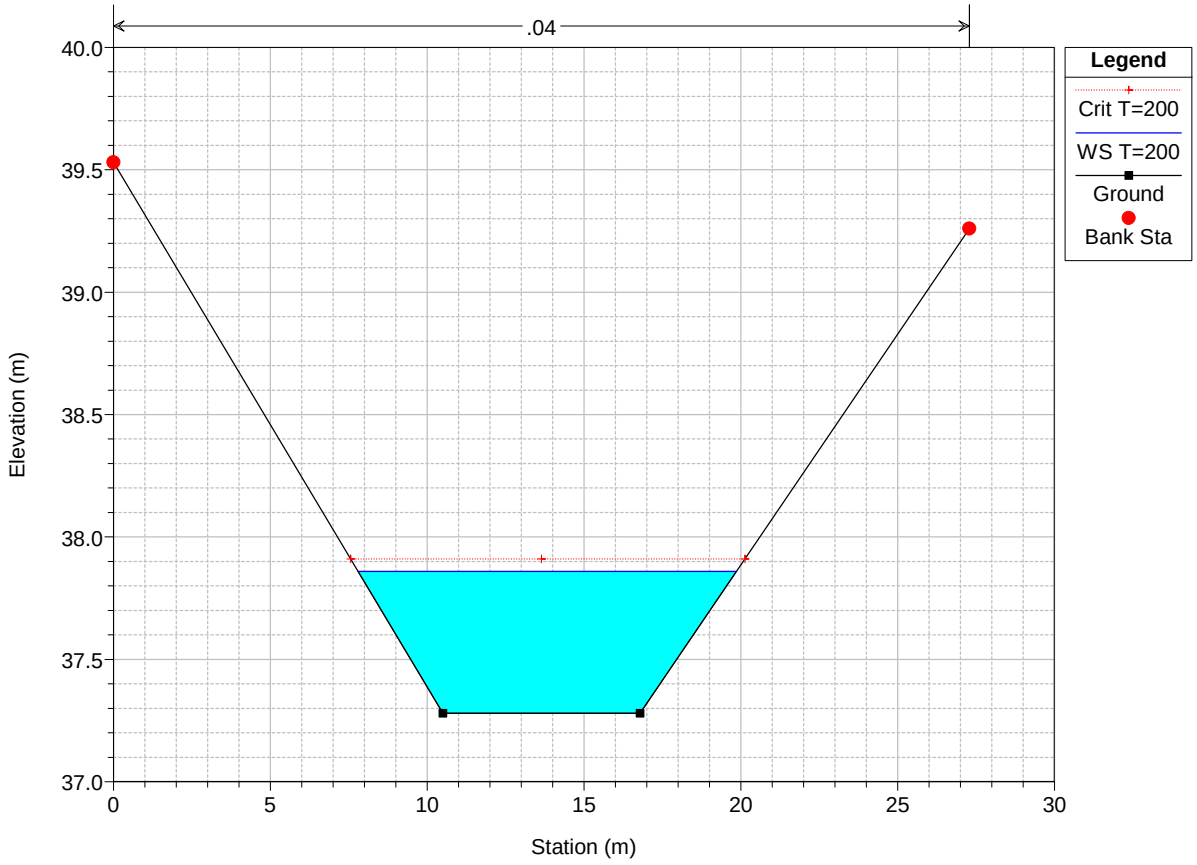

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.037
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
51
50
49
48
47
0
2
4
6
8
10
12
14


RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.027
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
41.0
40.5
40.0
39.5
39.0
38.5
38.0
0
5
10
15
20
25
30

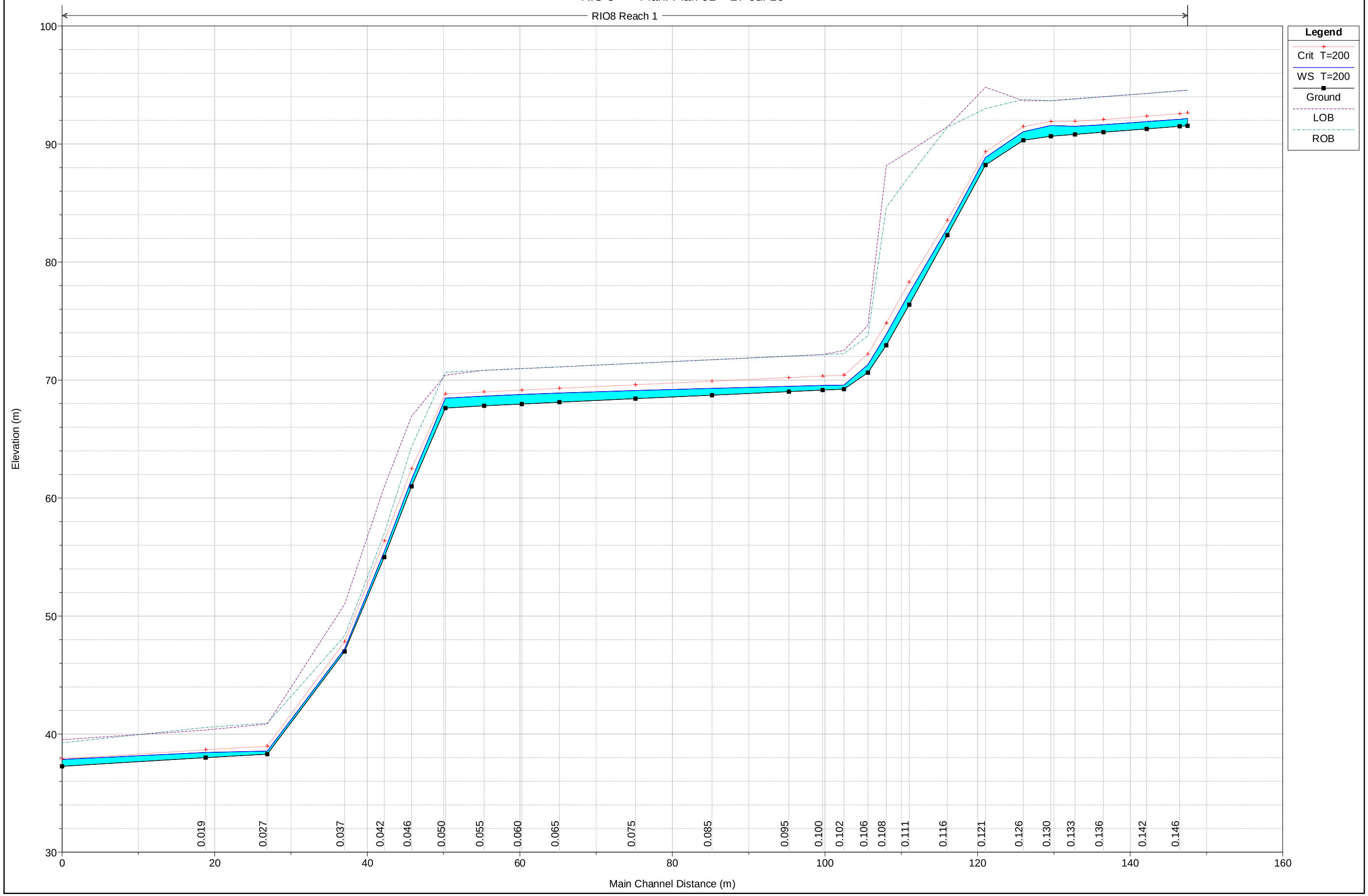

RIO 8 Plan: Plan 01 27-Jul-16
RS = 0.019
.04
Legend
Crit T=200
WS T=200
Ground
Bank Sta
Elevation (m)
Station (m)
41.0
40.5
40.0
39.5
39.0
38.5
38.0
0
5
10
15
20
25
30

RIO 8 Plan: Plan 01 27-Jul-16

RS = 0.000



RIO 8 Plan: Plan 01 27-Jul-16



HEC-RAS Plan:

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	L. Freeboard	LOB Elev	R. Freeboard	ROB Elev	Vel Head	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m/s)	(m)	(m)	(m)	(m)	(m)	
Reach 1	0.148	T=200	10.40	91.54	92.16	92.63	5.83	2.41	94.57	2.38	94.54	1.73	2.40
Reach 1	0.146	T=200	10.40	91.50	92.09	92.57	5.82	2.41	94.50	2.41	94.50	1.73	2.41
Reach 1	0.142	T=200	10.40	91.28	91.90	92.35	5.63	2.38	94.28	2.38	94.28	1.62	2.29
Reach 1	0.136	T=200	10.40	91.00	91.63	92.07	5.49	2.37	94.00	2.37	94.00	1.54	2.21
Reach 1	0.133	T=200	10.40	90.81	91.50	91.92	5.31	2.33	93.83	2.31	93.81	1.44	2.06
Reach 1	0.130	T=200	12.88	90.66	91.56	91.91	4.82	2.10	93.66	2.10	93.66	1.19	1.62
Reach 1	0.126	T=200	12.88	90.32	91.04	91.48	5.40	2.62	93.66	2.74	93.78	1.49	2.12
Reach 1	0.121	T=200	12.88	88.22	88.87	89.34	7.14	5.94	94.81	4.13	93.00	2.60	4.00
Reach 1	0.116	T=200	12.88	82.28	82.89	83.53	10.39	8.57	91.46	8.53	91.42	5.51	6.03
Reach 1	0.111	T=200	12.88	76.38	77.35	78.30	11.52	12.01	89.36	9.93	87.28	6.77	5.14
Reach 1	0.108	T=200	12.88	72.95	73.87	74.82	12.23	14.30	88.17	10.76	84.63	7.63	5.72
Reach 1	0.106	T=200	12.88	70.63	71.30	72.20	12.37	3.35	74.65	2.45	73.75	7.81	6.31
Reach 1	0.102	T=200	12.88	69.23	69.57	70.41	11.88	2.94	72.51	2.66	72.23	7.20	6.54
Reach 1	0.100	T=200	12.88	69.15	69.54	70.34	10.55	2.62	72.16	2.61	72.15	5.68	5.43
Reach 1	0.095	T=200	12.88	69.02	69.47	70.20	9.02	2.55	72.02	2.55	72.02	4.15	4.31
Reach 1	0.085	T=200	12.88	68.72	69.30	69.90	6.95	2.42	71.72	2.42	71.72	2.46	2.92
Reach 1	0.075	T=200	12.88	68.42	69.11	69.60	5.80	2.31	71.42	2.31	71.42	1.72	2.23
Reach 1	0.065	T=200	12.88	68.12	68.90	69.30	5.17	2.22	71.12	2.22	71.12	1.36	1.87
Reach 1	0.060	T=200	12.88	67.97	68.78	69.15	4.99	2.19	70.97	2.19	70.97	1.27	1.78
Reach 1	0.055	T=200	12.88	67.82	68.64	69.00	4.89	2.18	70.82	2.18	70.82	1.22	1.73
Reach 1	0.050	T=200	12.88	67.62	68.47	68.83	4.89	1.94	70.41	2.20	70.67	1.22	1.73
Reach 1	0.046	T=200	12.88	61.00	61.60	62.50	11.80	5.35	66.95	2.77	64.37	7.09	5.68
Reach 1	0.042	T=200	12.88	55.00	55.46	56.38	13.50	5.49	60.95	1.54	57.00	9.29	7.12
Reach 1	0.037	T=200	12.88	47.00	47.22	47.83	12.73	3.78	51.00	1.08	48.30	8.27	9.22
Reach 1	0.027	T=200	12.88	38.30	38.56	38.98	7.60	2.30	40.86	2.38	40.94	2.95	5.29
Reach 1	0.019	T=200	12.88	38.01	38.44	38.67	3.81	1.91	40.35	2.13	40.57	0.74	2.05
Reach 1	0.000	T=200	12.88	37.28	37.86	37.91	2.42	1.67	39.53	1.40	39.26	0.30	1.17