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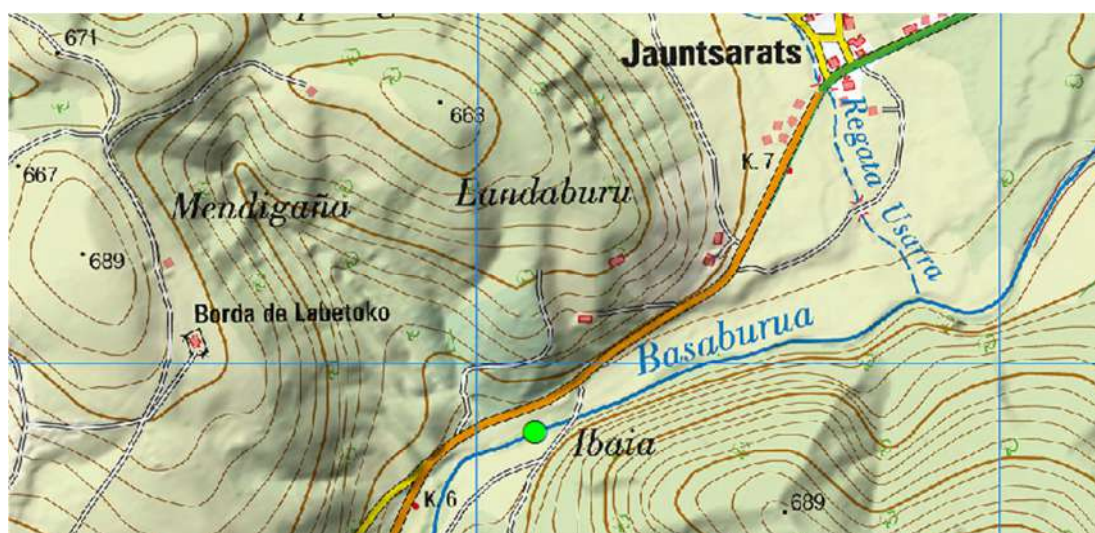
1. Antecedentes y objeto del estudio

La Comisaria de Aguas de la Confederación Hidrográfica del Ebro informo sobre el PROYECTO SECTORIAL DE INCIDENCIA SUPRAMUNICIPAL RUTA CICLISTA DONEZTEBE/SANTESTEBAN – IRURTZUN (S/REF 0009-OT-2017-000000 N/REF 2017-O-1109). Este estudio da contestación a la solicitud idoneidad de la actuación.

El presente estudio hidráulico se enmarca dentro de la fase de redacción del proyecto constructivo del PROYECTO SECTORIAL DE INCIDENCIA SUPRAMUNICIPAL RUTA CICLISTA DONEZTEBE/SANTESTEBAN – IRURTZUN (PRIS Eurovelo-1 Via Verde “Tramo Doneztebe – Irurtzun”) promovido por la Dirección General de Turismo y Comercio del Gobierno de Navarra. Se realizará el análisis del régimen hidráulico de los ríos Basaburua y Larraun sobre cuyo cauce se pretenden ejecutar dos pasarelas peatonales para dar continuidad al recorrido Eurovelo 1 (Ederbidea) entre Doneztebe-Santesteban e Irurtzun.

La ubicación de las mismas se muestra en las siguientes figuras:

Nueva pasarela peatonal de cruce del Río Basaburua (X: 597.111 Y: 4.760.868)



Nueva pasarela peatonal de cruce del Río Larraun (X: 598.059 Y: 4.761.520)



El río Basaburua nace en el extremo occidental del término municipal de Ulzama. Toma dirección E-W hasta las proximidades de la localidad de Jauntsaras, cambiando luego hacia el S hasta desembocar en la margen izquierda del río Larrún, a su vez afluente del Araquil. A lo largo de sus 17 km de recorrido recibe, en su curso medio, los barrancos de Gorostieta, Artius e Ibarrate procedentes de la vertiente meridional de la divisoria de aguas atlántica-mediterránea. Drena una superficie de 75 km² pertenecientes al término de Basaburúa Mayor. El río Basaburua, es afluente del río Larraun, que a su vez desemboca en el Río Arakil cerca de la localidad de Irurtzun.

En río Basaburua se pretende la construcción de una nueva pasarela peatonal en el entorno de una zona de recreo existente y en el río Larraun, a la altura de Dos hermanas, también se construirá una nueva pasarela peatonal, de tal modo que den continuidad a al recorrido ciclista Eurovelo 1 (Ederbidea) entre Doneztebe-Santesteban e Irurtzun. En la primera y segunda imagen aparecen representados los puntos donde estarán ubicadas las dos pasarelas peatonales que cruzarán de forma perpendicular los cauces de los ríos Basaburua y Larraun

Las zonas donde se van a realizar estas actuaciones son zonas rurales, fuera de zonas urbanas y sin edificaciones ni viviendas cercanas.

El objetivo del presente estudio es evaluar el comportamiento de estas estructuras, y validar su diseño evitando que su presencia provoque un cambio significativo en las condiciones hidráulicas actuales del cauce, tanto para las avenidas correspondientes a los periodo de retorno de 5, 10 y 100 años, como para la de periodo de retorno de 500 años.

Considerando lo establecido en la Orden FOM/298/2016, de 15 de febrero, por la que se aprueba la norma 5.2 I.C. de Drenaje Superficial (Instrucción de Carreteras), y las limitaciones establecidas en el Plan de Ordenación del Territorio del Gobierno de Navarra, recogido en el *ANEXO PN5-Criterios relativos a la zonificación de áreas inundables y usos admisibles en las mismas*.

2. Metodología

Para la realización de este estudio se ha empleado la siguiente metodología:

- a) Cálculo de los caudales de avenida para diferentes periodos de retorno. Las avenidas se han calculado utilizando la aplicación CauMAX desarrollada por el Centro de Estudios y Experimentación de Obras Públicas (CEDEX).
- b) Cálculo del nivel de avenida de 5, 10, 100 y 500 años de periodo de recurrencia, empleando el programa informático HEC-RAS para simular las condiciones iniciales y finales una vez ejecutadas las actuaciones consideradas.
- c) Comparación entre los niveles de avenida antes y después de las actuaciones.

3. Determinación de los caudales de avenida mediante CAUMAX

El principal objetivo de la aplicación de caudales máximos (CauMAX) es ofrecer una herramienta que ayude a:

- Consulta de los mapas de caudales máximos para los periodos de retorno de 2, 5, 10, 25, 100 y 500 años.
- Cálculo del caudal máximo de cualquier otro periodo de retorno entre 2 y 500 años por interpolación de los valores de los mapas ya definidos previamente.
- Proporcionar una herramienta para realizar estimaciones de los caudales máximos en los puntos de la red fluvial no incluidos en los mapas (cuencas menores de 50 km²).

Dicha aplicación está basada en gvSIG y ha sido desarrollada por el CEDEX (Centro de Estudios y Experimentación de Obras Públicas).

La aplicación consta de dos partes, por un lado el Sistema de Información Geográfico gvSIG que es un software de libre distribución sobre el que se ha desarrollado la aplicación, y por otro lado, la aplicación misma, que nos permite realizar las consultas y los cálculos.

Los caudales incluidos en la aplicación provienen de dos fuentes. Por un lado, para cuencas superiores a 50 km², el cálculo proviene de un análisis estadístico de la información de estaciones de aforo distribuidas por todo el territorio nacional. Por otro, en el caso de cuencas pequeñas, inferiores a los 50 km², la aplicación proporciona las herramientas necesarias para realizar el cálculo utilizando el método racional modificado (Témez, 1991), el mismo utilizado en la Instrucción de Carreteras 5.2 I.C. de Drenaje Superficial.

Hay que tener en cuenta que los caudales obtenidos de la aplicación CauMax son en general bastante superiores a los que se han obtenido en los registros de avenidas, pero utilizando estos caudales obtenidos con el CauMax nos situamos en el lado de la seguridad, ya que obtenemos unos valores más conservadores.

Los caudales calculados para el río Basaburua a su paso por el cruce con la nueva pasarela peatonal (X: 597.111 Y: 4.760.868) P.K. 38+500, son los siguientes:

$$Q_5 = 126,00 \text{ m}^3/\text{s}$$

$$Q_{10} = 154,00 \text{ m}^3/\text{s}$$

$$Q_{100} = 248,00 \text{ m}^3/\text{s}$$

$$Q_{500} = 320,00 \text{ m}^3/\text{s}$$

Los caudales calculados para el río Larraun a su paso por el cruce con la nueva pasarela peatonal (X: 598.059 Y: 4.761.520) P.K. 49+900, son los siguientes:

$$Q_5 = 305,00 \text{ m}^3/\text{s}$$

$$Q_{10} = 375,00 \text{ m}^3/\text{s}$$

$$Q_{100} = 604,00 \text{ m}^3/\text{s}$$

$$Q_{500} = 784,00 \text{ m}^3/\text{s}$$

Los informes generados por la aplicación CAUMAX se adjuntan en el Anexo 1.

4. Cálculo del comportamiento hidráulico del tramo de estudio

4.1. Introducción

Con objeto de conocer la influencia en el comportamiento hidráulico en los distintos tramos donde se van a ejecutar las dos pasarelas, se ha procedido a realizar el análisis del cauce antes y después de la colocación de los tubos. Al igual que el análisis las pasarelas.

El modelo de simulación hidráulica utilizado para evaluar los niveles de las crecidas es el River Analysis System del U.S. Army Corps of Engineers (HEC-RAS), en su versión 5.0.5. Este software que modeliza el flujo unidimensional (1D) es uno de los más utilizados y probados en el campo de la ingeniería hidráulica, debido a su gran estabilidad numérica y a los resultados contrastados en diferentes cuencas de estudio.

Para el presente estudio se realizaron evaluaciones de caudales para flujo permanente (steady flow), es decir, no se tomó en cuenta la evolución del hidrograma sino más bien únicamente los caudales producidos por éste.

4.2. Geometría del cauce

La geometría del cauce incluye secciones transversales del mismo y de las estructuras existentes.

El Modelo Digital del Terreno (MDT) empleado como base para este estudio, se ha construido a partir de los datos extraídos del vuelo LIDAR del Instituto Geográfico Nacional (IGN), descargado a partir de su Centro de Descargas (CNIG). El modelo digital seleccionado incluye datos de elevación de las carreteras y caminos existentes, así como de las edificaciones, del que se obtiene una malla regular de dos puntos por metro cuadrado de superficie (puntos/m²) y con una precisión altimétrica próxima a los 20 cm.

En el P.K. 38+500 se construye una nueva pasarela peatonal de 30 m de longitud sobre el río Basaburua, que constara una pasarela de acceso en la margen derecha, en la zona descanso.

Los estribos se situaran a ambos márgenes del río elevando 0,5 metros de la cota existente en la margen izquierda y llegando a la misma cota en la margen derecha en la zona de descanso. El cruce se realizará de forma perpendicular al río. La estructura será metálica y tendrá pavimento y cierres de madera. En la siguiente imagen se representa el punto donde cruza la pasarela peatonal en las inmediaciones de la zona de descanso.



En la siguiente imagen se realiza una simulación de la situación futura, después de la instalación de la pasarela peatonal en la zona.



Vista del cauce aguas abajo del primer paso previsto.

Entre los PP.KK. 48+000 y 51+400, entre las localidades de Latasa e Irurtzun, el trazado discurre paralelo al cauce del río Larraun, por ambas márgenes. Se proyecta la construcción de una nueva pasarela peatonal de 25 m de longitud en el P.K. 49+900, denominada pasarela de Kaxarna.

La pasarela se situará dónde estaba el antiguo puente del ferrocarril del Plazaola, el cual cruzaba el río Larraun a su paso por Dos Hermanas, cerca de Irurtzun. Para el cruce del río se elevará el estribo de la margen izquierda un metro aproximadamente sobre el estribo del ferrocarril existente y se realizará un nuevo estribo en la margen derecha para poder atravesar el cauce de forma perpendicular. El nuevo estribo de la margen derecha se colocará con la misma cota que el estribo de la margen izquierda, el acceso a dicha pasarela se realizará mediante un relleno de escollera. En la siguiente imagen se realiza una simulación de la situación futura, después de la instalación de la pasarela peatonal en la zona.



En la siguiente fotografía donde se representa el trazado del antiguo puente de ferrocarril (línea roja) trazado de la nueva pasarela (línea amarilla).

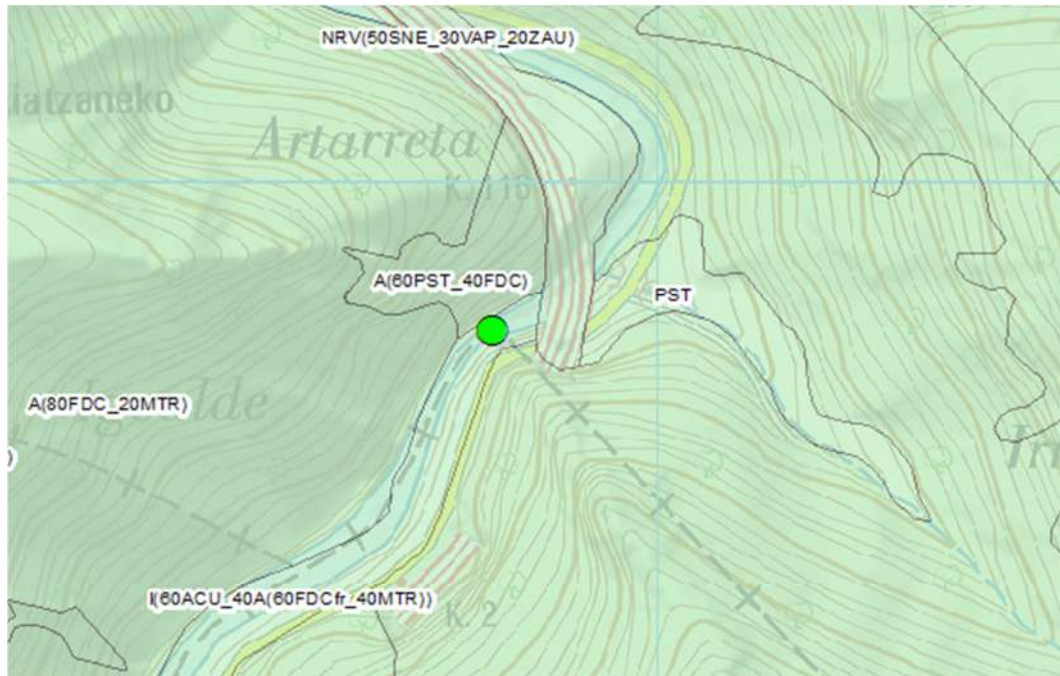


En cuanto a los valores de rugosidad de Manning, se han consultado la capa de usos del suelo del SIOSE para caracterizar las márgenes de los estudios.

Nueva pasarela peatonal sobre el Río Basaburua



Nueva pasarela peatonal sobre el Río Larraun



Con los datos de tipos de suelos procedentes del SIOSE obtenemos los valores del coeficiente de Manning a partir de la tabla del libro “Hidráulica de Canales Abiertos” de Ven Te Chow, donde aparecen los valores recomendados para cauces naturales, que además son los que el propio HEC-RAS recomienda también en sus tablas de ayuda, y cuyos valores son los siguientes:

Descripción de la corriente	Mínimo	Normal	Máximo
A Cauces naturales			
A.1 Cursos secundarios (ancho de la superficie libre en crecida < 30 m)			
A.1.1 Cursos en planicies			
- Límpios, rectos, sin fallas ni puntos	0,025	0,030	0,033
- Rectos con algunas piedras y puntos	0,030	0,035	0,040
- Límpios con meandros, con algunos pozos y bancos	0,033	0,040	0,045
- Meandros con algunas piedras y puntos	0,035	0,045	0,050
- Meandros con muchas piedras	0,045	0,050	0,060
- Tramos rectos, con pozos y puntos profundos	0,050	0,070	0,080
- Tramo con mucho pasto, pozos profundos y cauce en crecida con muchos arbustos y material	0,075	0,100	0,150
A.1.2 Cursos montañosos, carentes de vegetación en el fondo, laderas con pendientes pronunciadas y árboles y arbustos en las laderas que se sumergen en niveles de crecida			
- Cauce de grava, cantos rodados y algunas rocas	0,030	0,040	0,050
- Cauce de cantos rodados, con grandes rocas	0,040	0,050	0,070
A.2 Cursos en planicies inundadas			
A.2.1 Zonas de pastos, sin arbustos			
- Panto seco	0,025	0,030	0,035
- Panto alto	0,030	0,035	0,050
A.2.2 Zonas cultivadas			
- Sin cultivo	0,020	0,030	0,030
- Cultivos sembrados en línea en fase de madurez fisiológica	0,025	0,035	0,045
- Cultivos sembrados a volea en fase de madurez fisiológica	0,030	0,040	0,050
A.2.3 Zonas arboladas			
- Escasos árboles y pasto abundante	0,035	0,050	0,070
- Pocaños árboles y arbustos sin follaje (panda invernal)	0,035	0,050	0,060
- Pocaños árboles y arbustos con follaje (fase vegetativa)	0,040	0,060	0,080
- Arbustos medianos a densos durante la panda invernal	0,045	0,070	0,110
- Arbustos medianos a densos durante la fase vegetativa	0,070	0,100	0,160
A.2.4 Zonas arborescentes			
- Sauces densos, temporalmente invernal	0,110	0,150	0,200
- Terreno claro con ramas sin hojas	0,030	0,040	0,050
- Terreno claro con ramas con gran crecimiento de brotes	0,050	0,060	0,080
- Zonas de explotación moderna con árboles caídos, poco crecimiento en las zonas bajas y nivel de inundación por debajo de las ramas	0,080	0,100	0,120
- Zonas de explotación moderna con árboles caídos, poco crecimiento en las zonas bajas y nivel de inundación que alcanza a las ramas	0,100	0,120	0,160
A.3 Cursos importantes (ancho de la superficie libre en crecida > 30 m)			
En este caso, los valores del coeficiente n son inferiores a los correspondientes de cauces secundarios análogos, ya que los bancos ofrecen una resistencia efectiva menor,			
- Sección regular sin rocas ni arbustos	0,025		0,060
- Sección irregular y rugosa	0,035		0,100

Para nuestro modelo hidráulico se han tomado $n=0,035$ en el cauce y $n=0,045$ en las márgenes cubiertas por prados y $n=0,085$ para las zonas de arbolado, que son valores intermedios y representativos de los usos de suelo existentes.

4.3. Condiciones de contorno

Los modelos se han corrido en régimen mixto, imponiendo como condiciones de contorno el calado normal tanto aguas arriba como aguas abajo. Así, y tomando datos del perfil longitudinal del cauce extraído del modelo digital del terreno, se obtiene una pendiente para los distintos puntos del estudio:

Nueva pasarela peatonal sobre el Río Basaburua

Aguas arriba de 0,00784 m/m, y 0,00449 m/m aguas abajo (pendiente media del cauce de 0,00779 m/m).

Nueva pasarela peatonal sobre el Río Larraun

Aguas arriba de 0,00454 m/m, y 0,00112 m/m aguas abajo (pendiente media del cauce de 0,00442 m/m).

5. Resultados y conclusiones

Los resultados proveniente del análisis unidimensional mediante el programa HEC-RAS en su versión 5.0.5, vemos que la sobreelevación máxima que se da entre la situación actual y la futura para los periodos de retorno considerados se produce en el perfil situado aguas arriba de la pasarela situada más hacia aguas abajo, y los valores son los siguientes:

Nueva pasarela peatonal sobre el Río Basaburua

Perfil	Q ₅	Q ₁₀	Q ₁₀₀	Q ₅₀₀
PK 0+205.3876	0,01 m	0,05 m	0,33 m	0,50 m

Valores de la sobreelevación máxima producida entre la situación actual y la futura

Perfil 0+205.3876	Vel Chnl (m/s) Actual	W.S. Elev (m) Actual	Vel Chnl (m/s) Futura	W.S. Elev (m) Futura
T5	2,1	529,86	2,08	529,87
T10	2,32	530,05	2,25	530,10
T100	2,88	530,56	2,51	530,89
T500	3,25	530,87	2,66	531,37

Valores de la velocidad y elevación en la situación actual y la futura

Nueva pasarela peatonal sobre el Río Larraun

Perfil	Q ₅	Q ₁₀	Q ₁₀₀	Q ₅₀₀
PK 0+265.6064	0,02 m	0,03 m	0,03 m	0,02 m

Valores de la sobreelevación máxima producida entre la situación actual y la futura

Perfil 0+265.6064	Vel Chnl (m/s) Actual	W.S. Elev (m) Actual	Vel Chnl (m/s) Futura	W.S. Elev (m) Futura
T5	2,88	459,09	2,79	459,11
T10	3,15	459,64	3,04	459,67
T100	3,81	461,28	3,68	461,31
T500	4,37	462,13	4,22	462,15

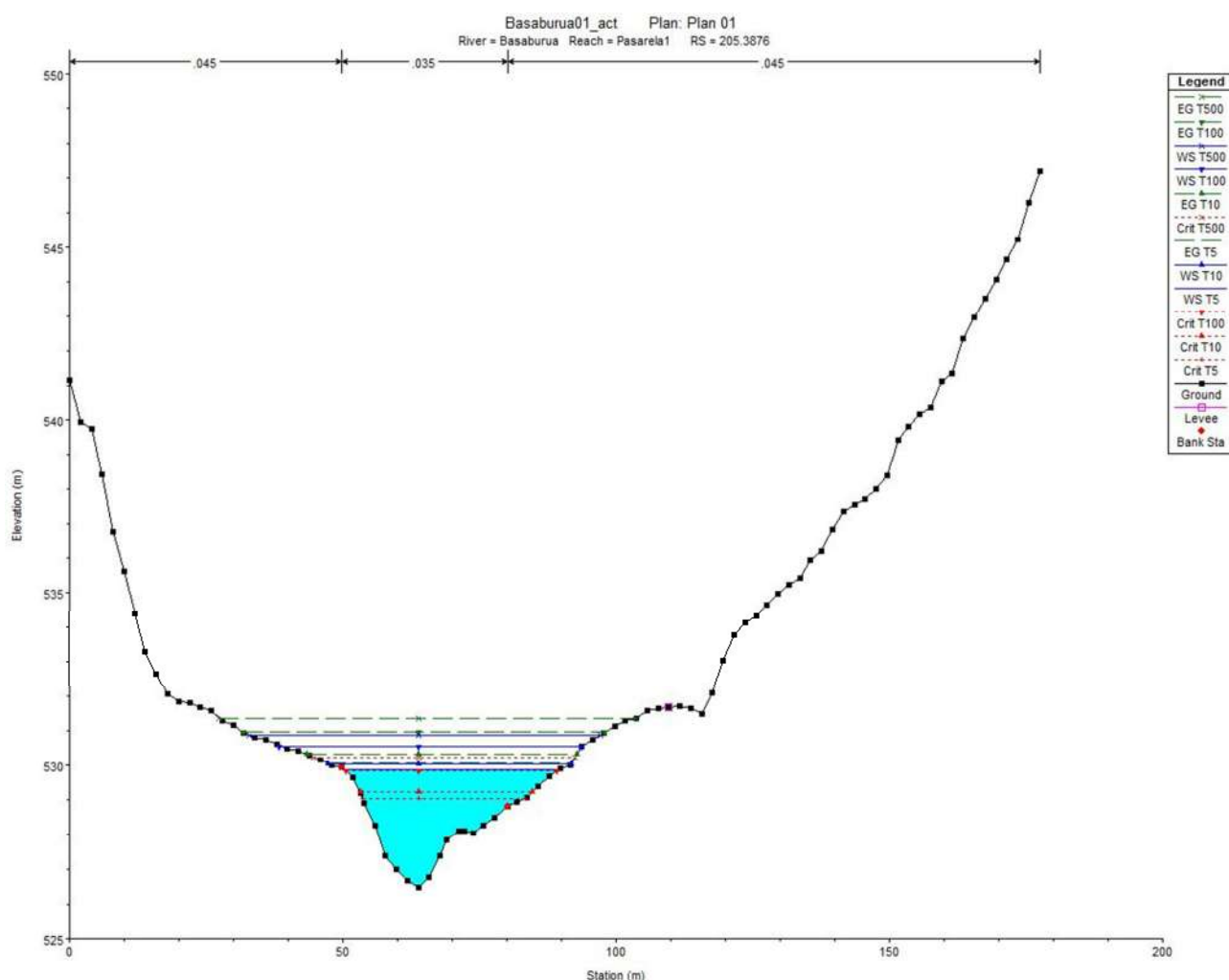
Valores de la velocidad y elevación en la situación actual y la futura

Estudio Hidráulico e Hidrológico del Proyecto de adecuación del recorrido Eurovelo 1 (Ederbidea) entre Doneztebe-Santesteban e Irurtzun (Navarra)

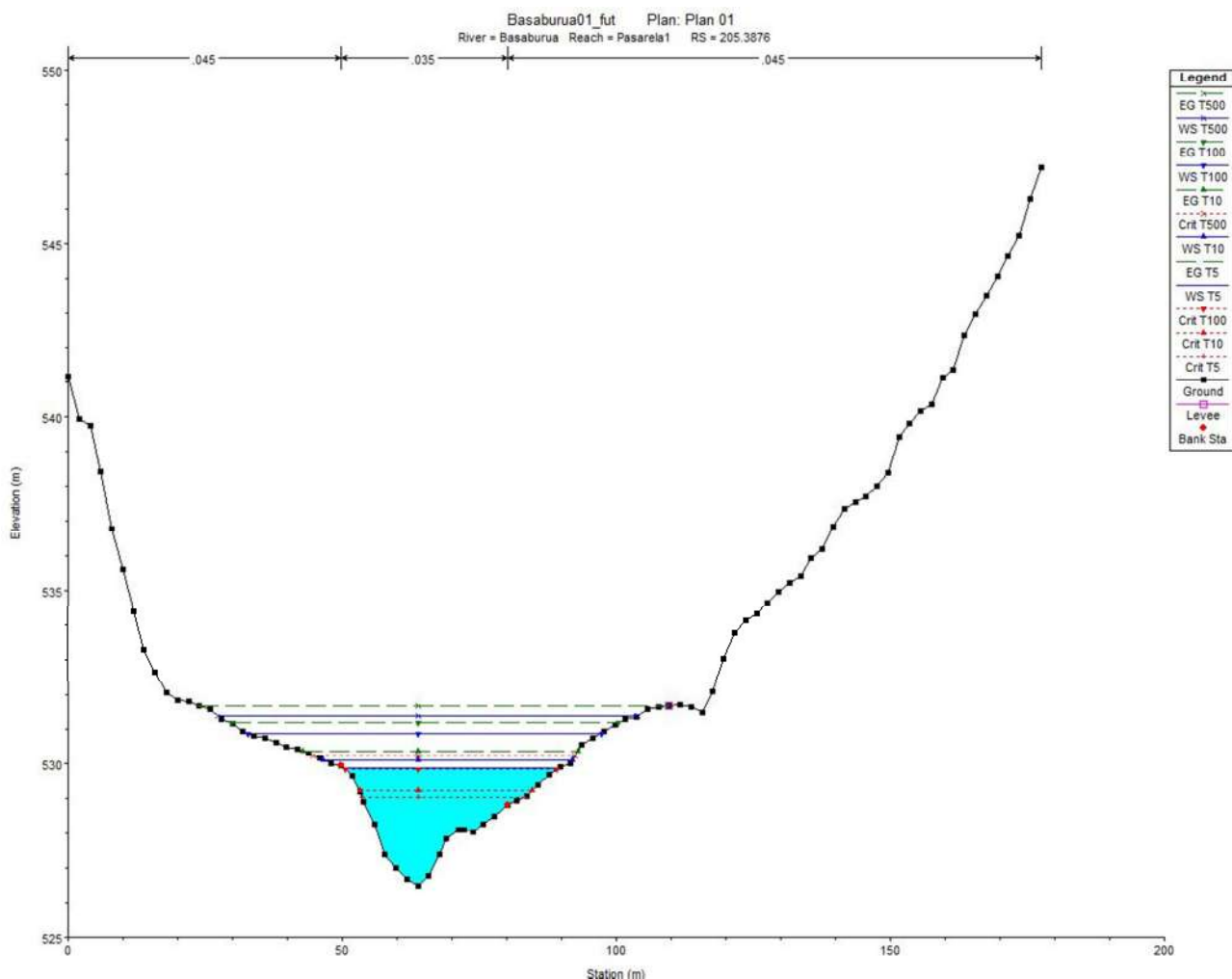
Como se puede observar en estas tablas las variaciones que se producen entre la situación actual y la futura no son importantes, sufriendo variaciones pequeñas las sobreelevaciones y los datos de velocidades y caudales.

En los siguientes gráficos se puede observar el alcance de las distintas avenidas para los caudales considerados en el perfil en el que se produce la máxima variación en el nivel de agua. Como puede verse, el área de flujo inefectivo que se genera por la presencia de la pasarela es el responsable de la sobreelevación producida para caudales bajos, si bien la influencia de la estructura para las avenidas de mayor periodo de retorno es menor.

Nueva pasarela peatonal sobre el Río Basaburua

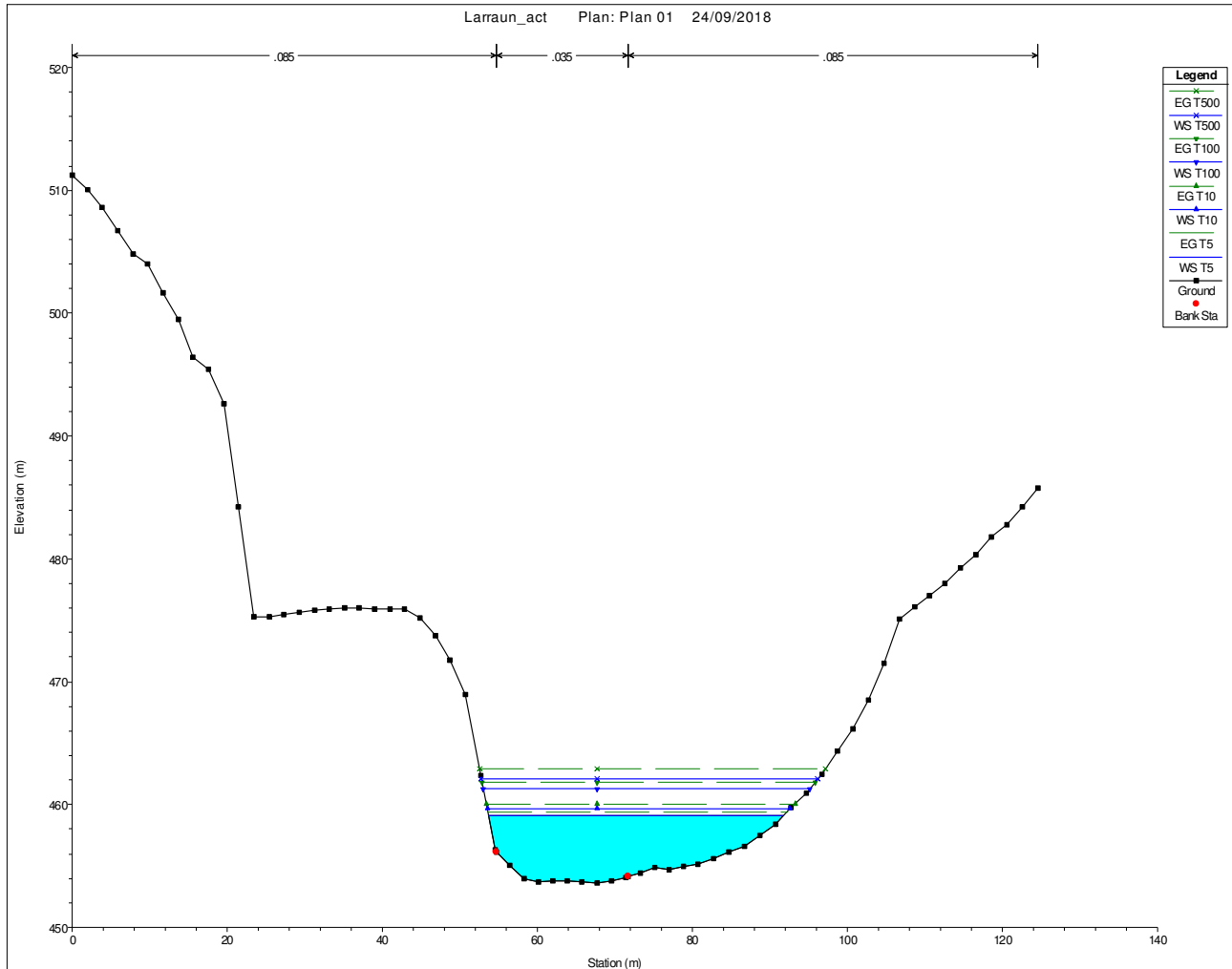


Niveles de avenida para la situación actual en el perfil de máxima sobreelevación

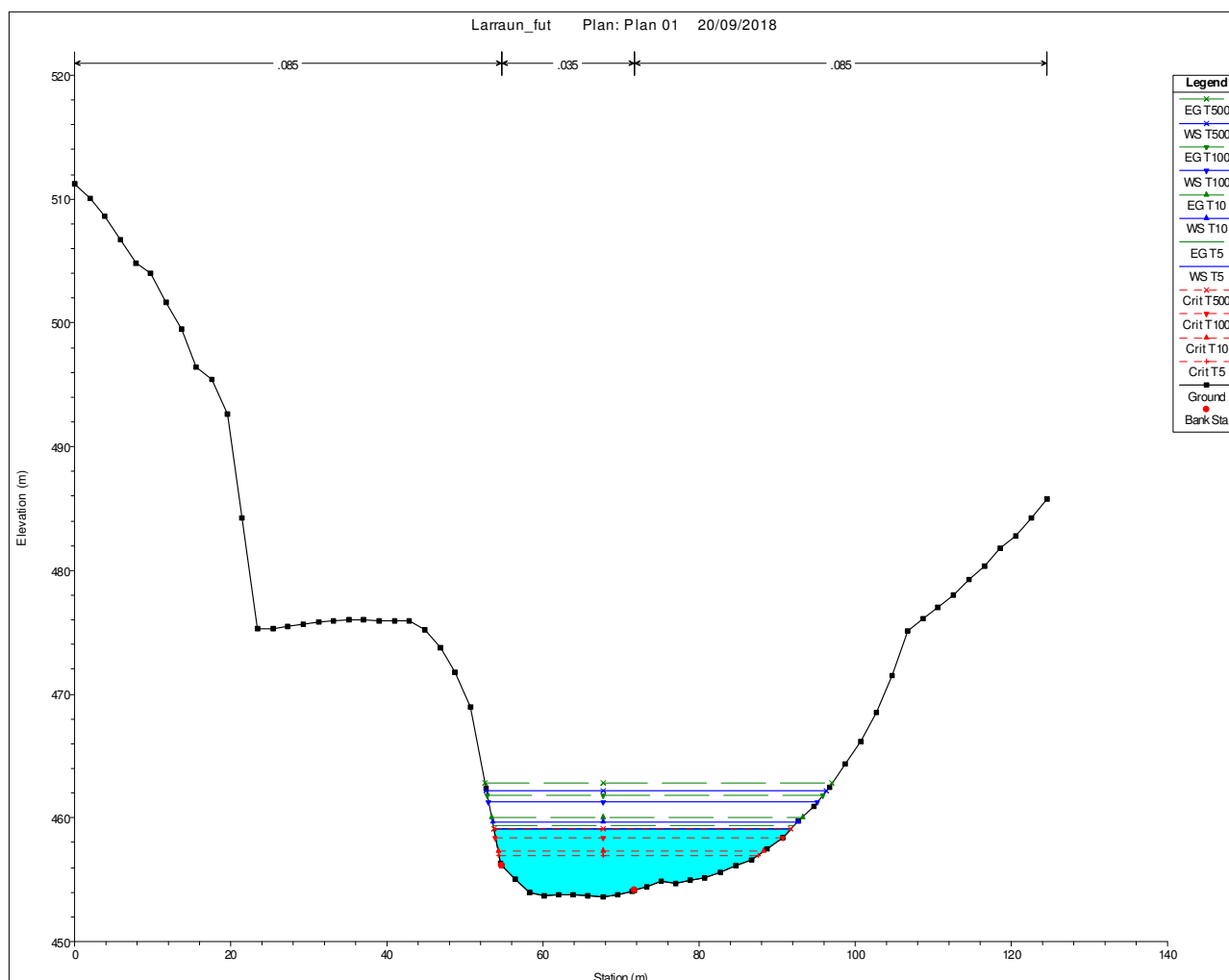


Niveles de avenida para la situación futura en el perfil de máxima sobreelevación

Nueva pasarela peatonal sobre el Río Larraun



Niveles de avenida para la situación actual en el perfil de máxima sobreelevación

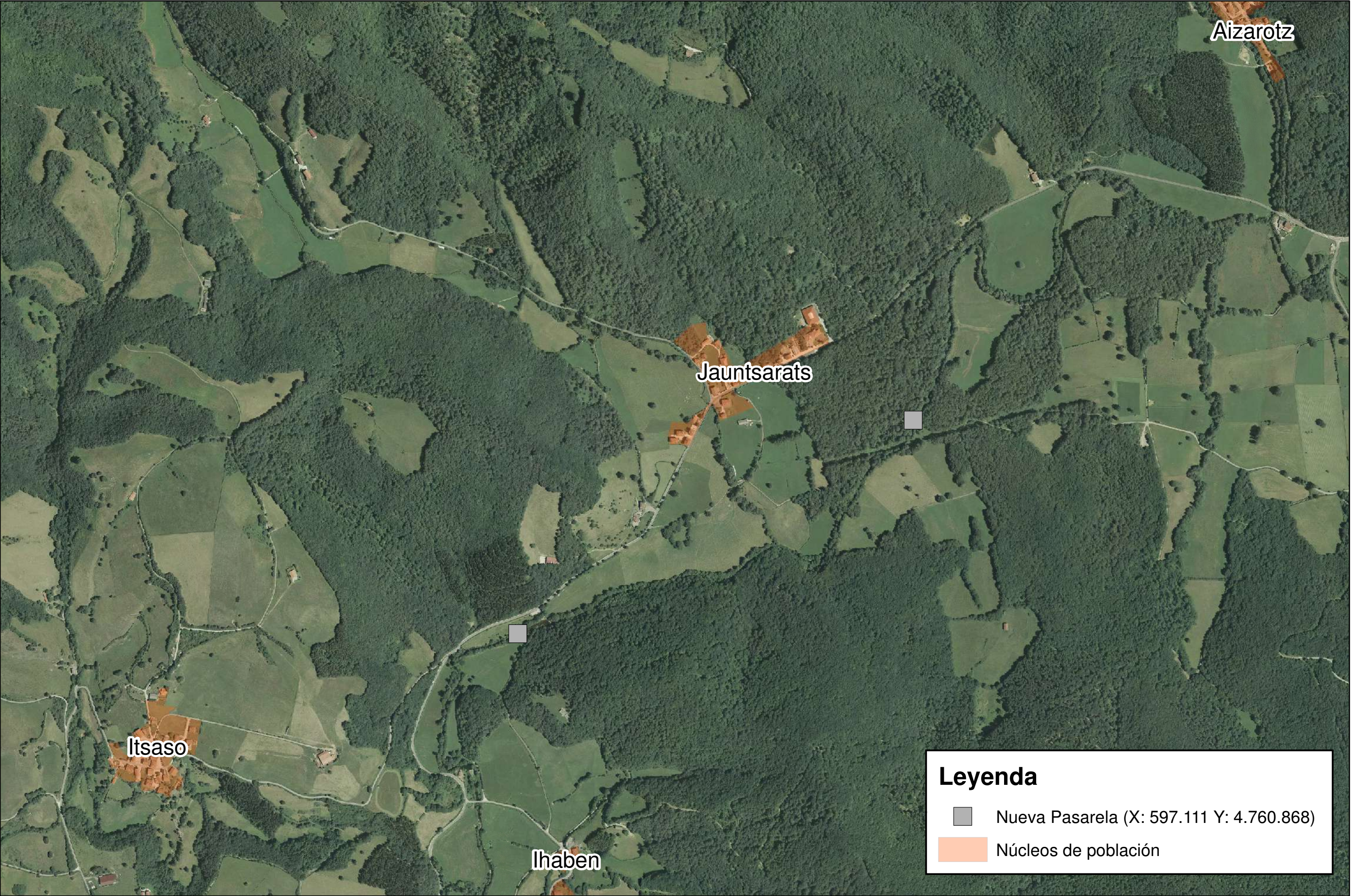


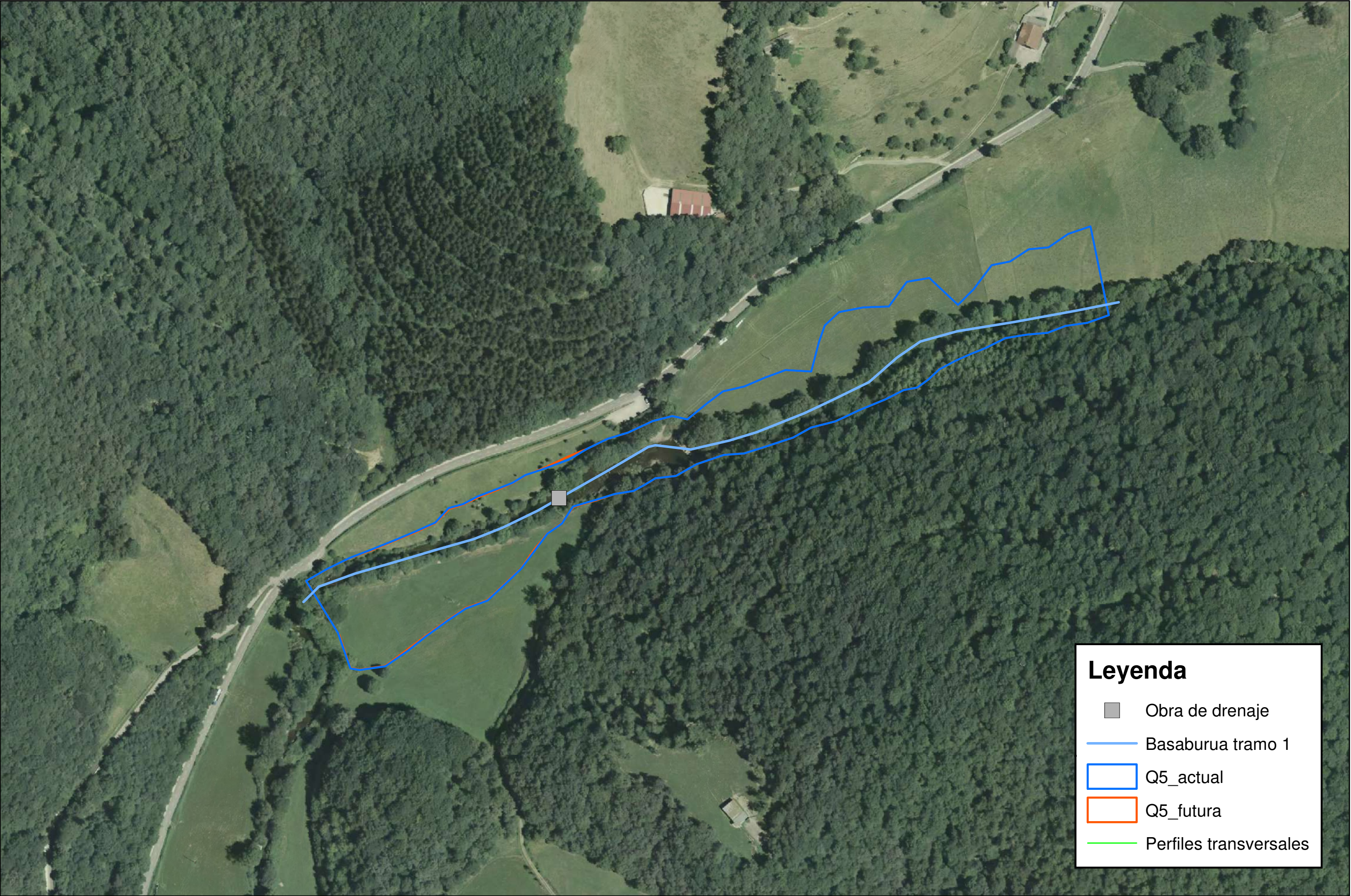
Niveles de avenida para la situación futura en el perfil de máxima sobreelevación

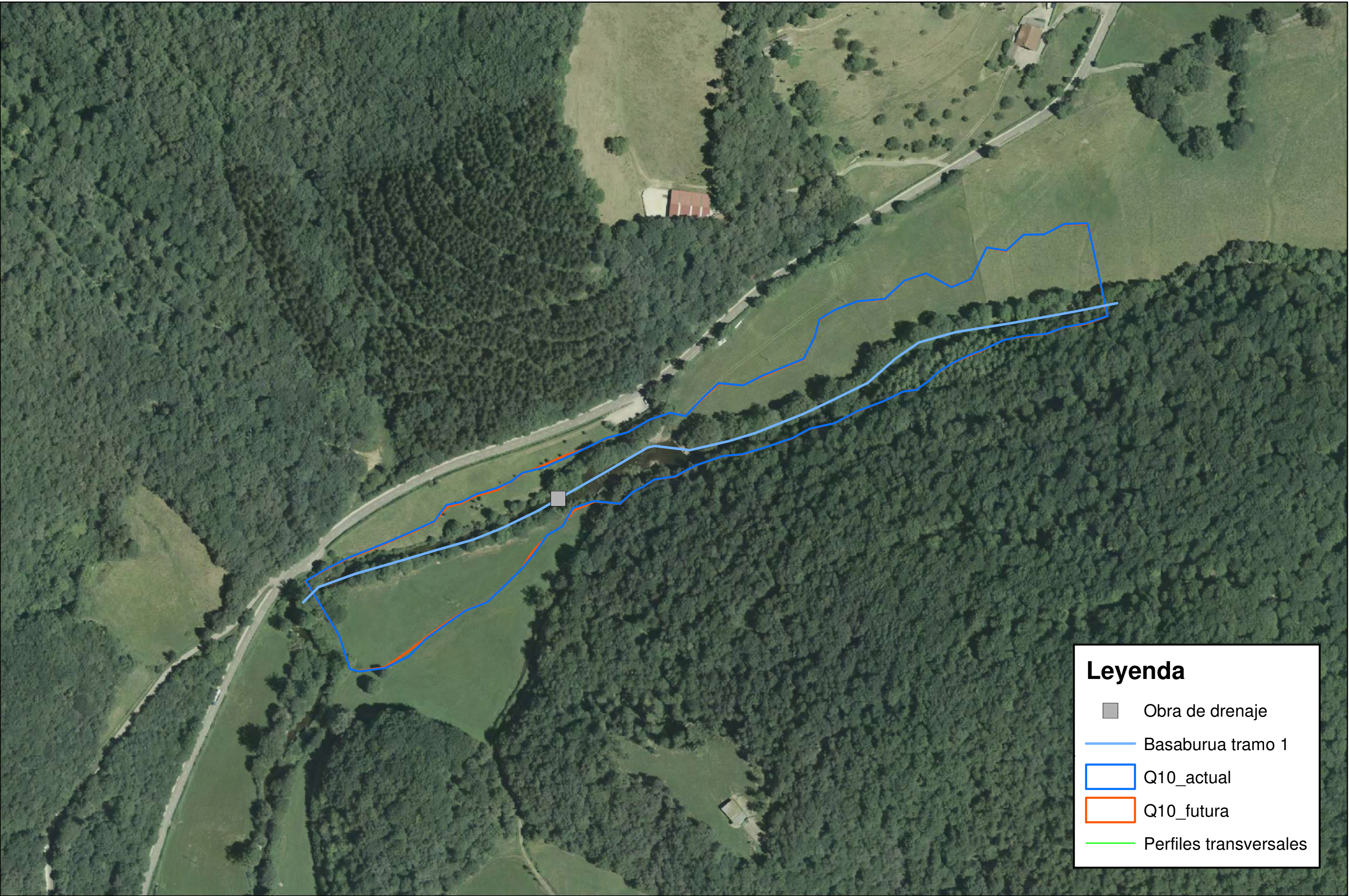
- Las pasarelas no afectan de manera sustancial a las avenidas consideradas (Q5 , Q10 , Q100 y Q500), no incrementando el nivel de riesgo.
- Asimismo, las pasarelas están dispuestas en zonas no urbanizables, alejadas de zonas pobladas, despejadas de edificaciones y viviendas, por lo que las alteraciones en el comportamiento del flujo (que no son sustanciales según los resultados de las modelizaciones realizadas) se producen fuera de la zona urbana.
- De acuerdo con el artículo 4.3.1 de la Norma 5.2 I.C. de Drenaje Superficial (Orden FOM/298/2016 de 15 de febrero), para el caudal de proyecto “Qp” la sobreelevación producida por las estructuras inmediatamente aguas arriba de ellas no será nunca superior a 50 cm. y se cumple con el apartado 4 del artículo 126 ter., donde se dice que “Los puentes en caminos vecinales, vías y caminos de servicio y otras infraestructuras de baja intensidad de tráfico rodado, deberán tener, al menos, la misma capacidad de desagüe que el cauce en los tramos inmediatamente aguas arriba y aguas abajo”.

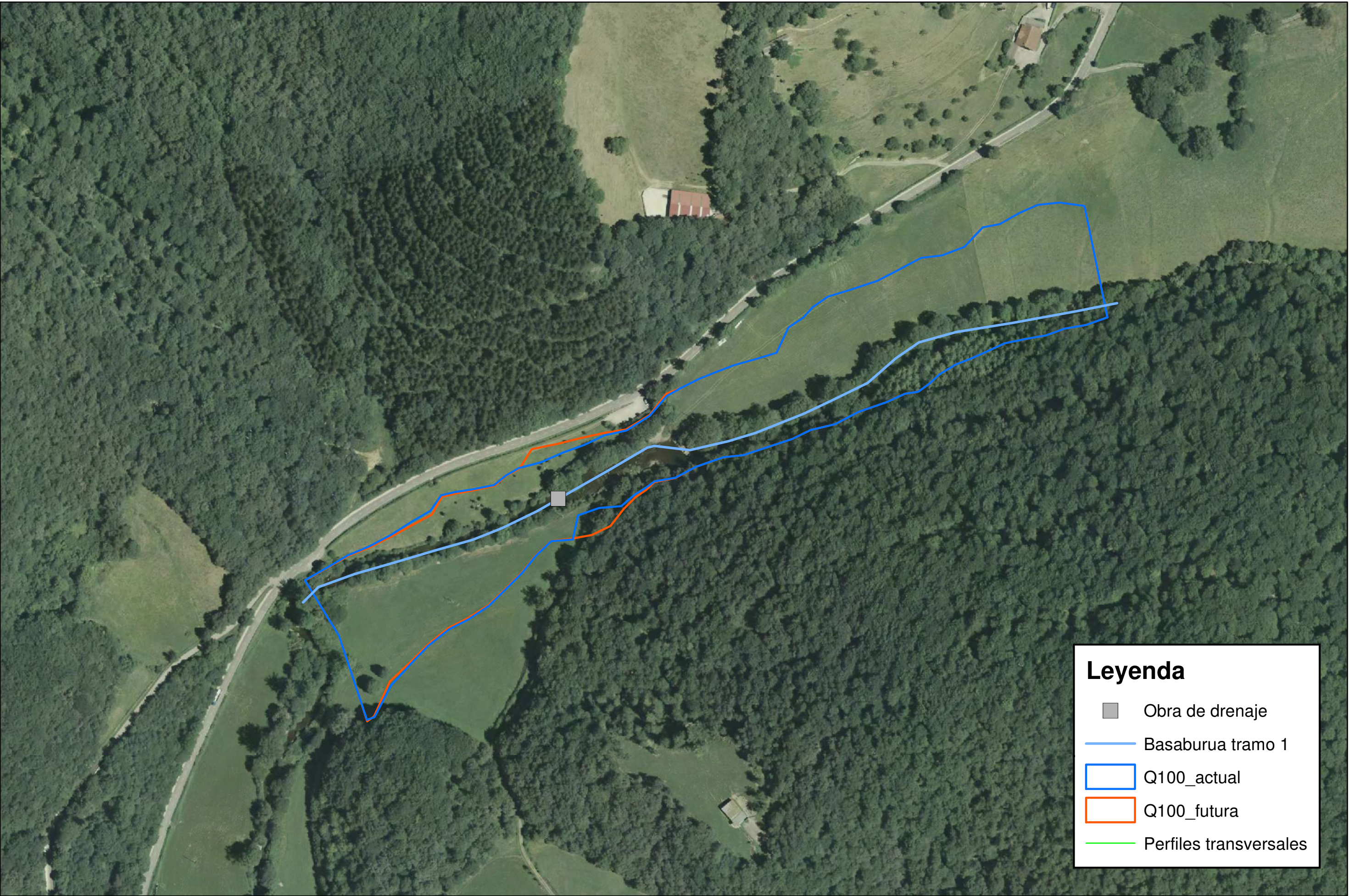
6. Planos

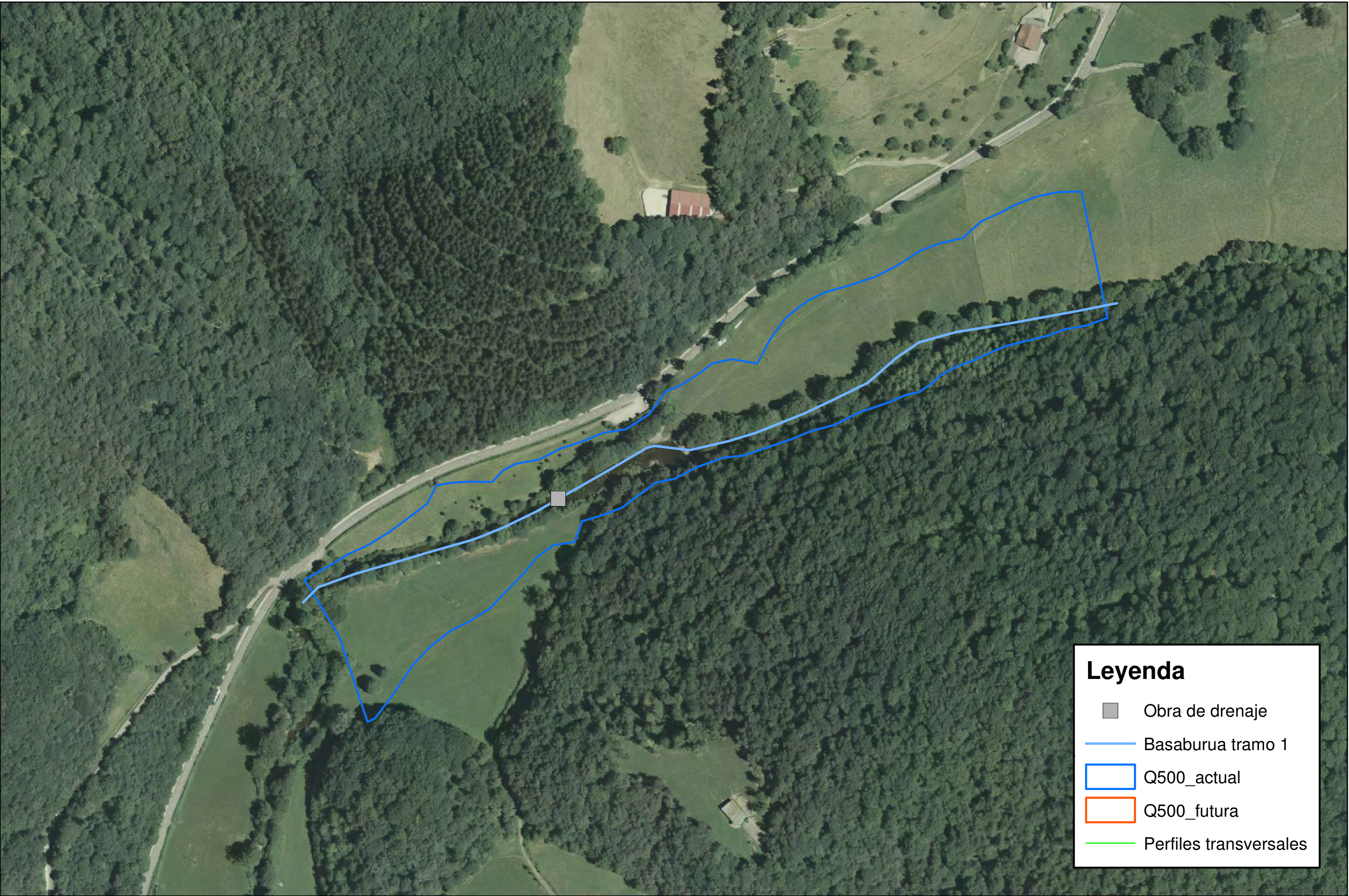
6.1. Nueva pasarela peatonal sobre el río Basaburua





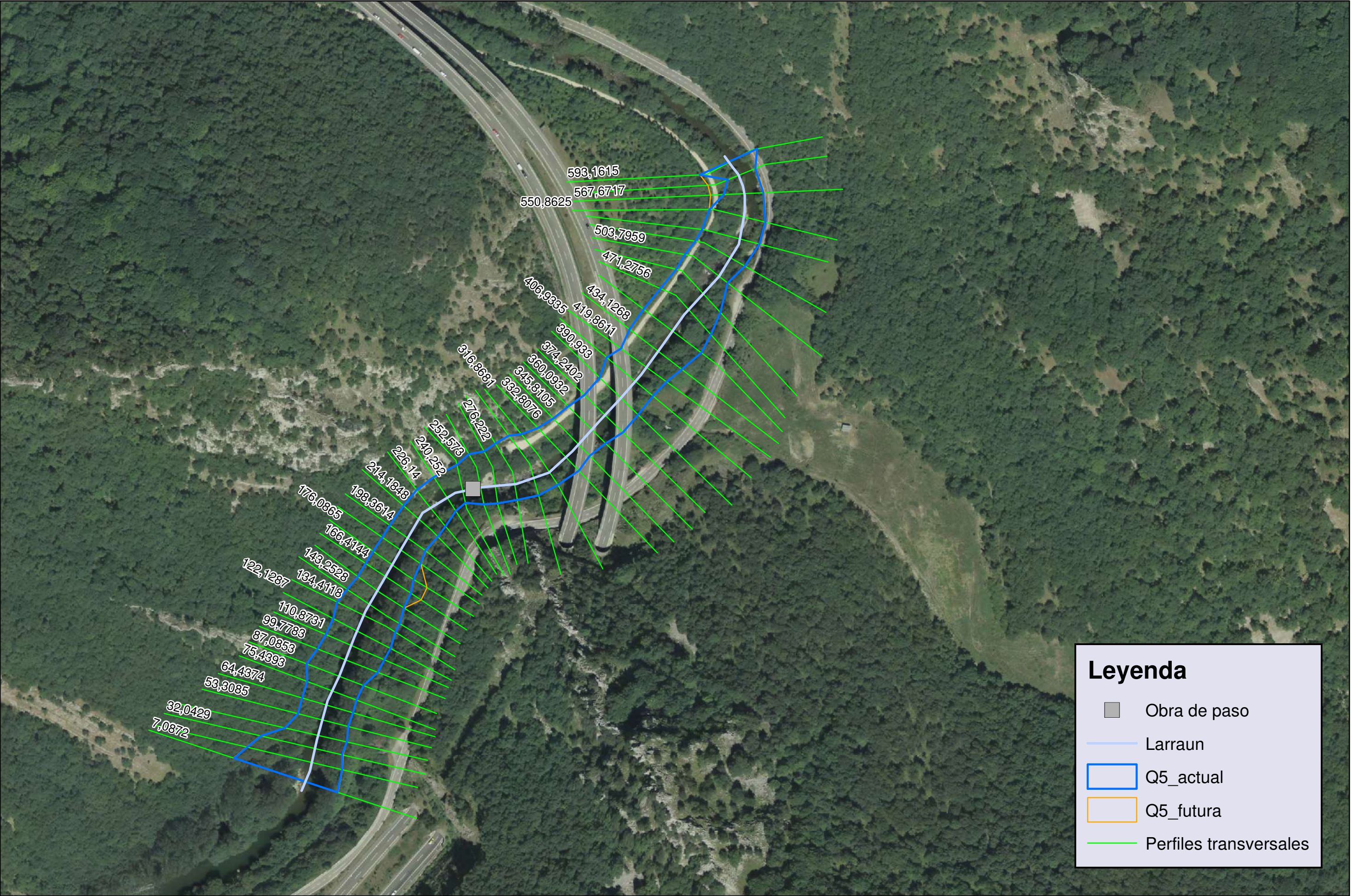


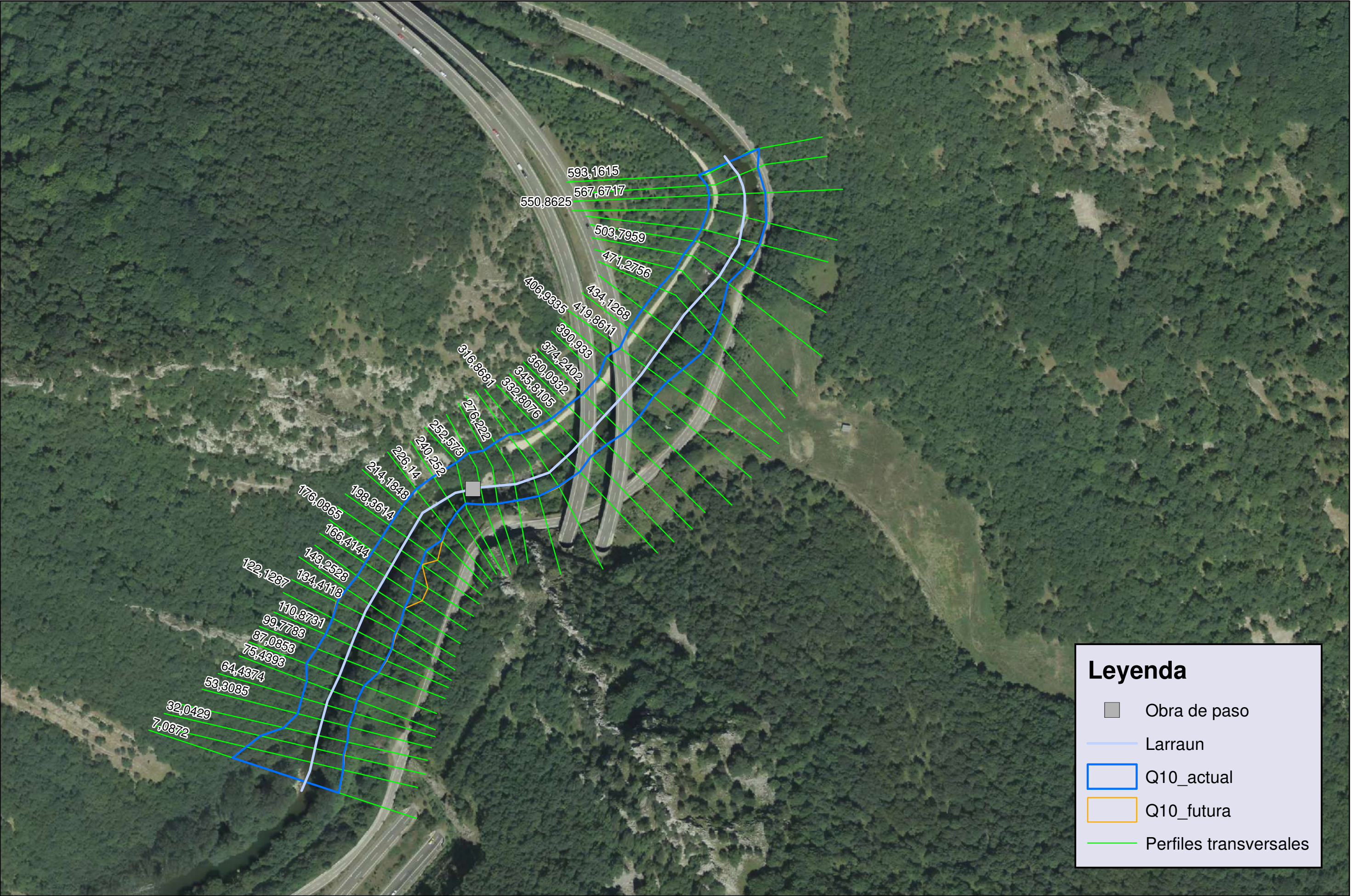


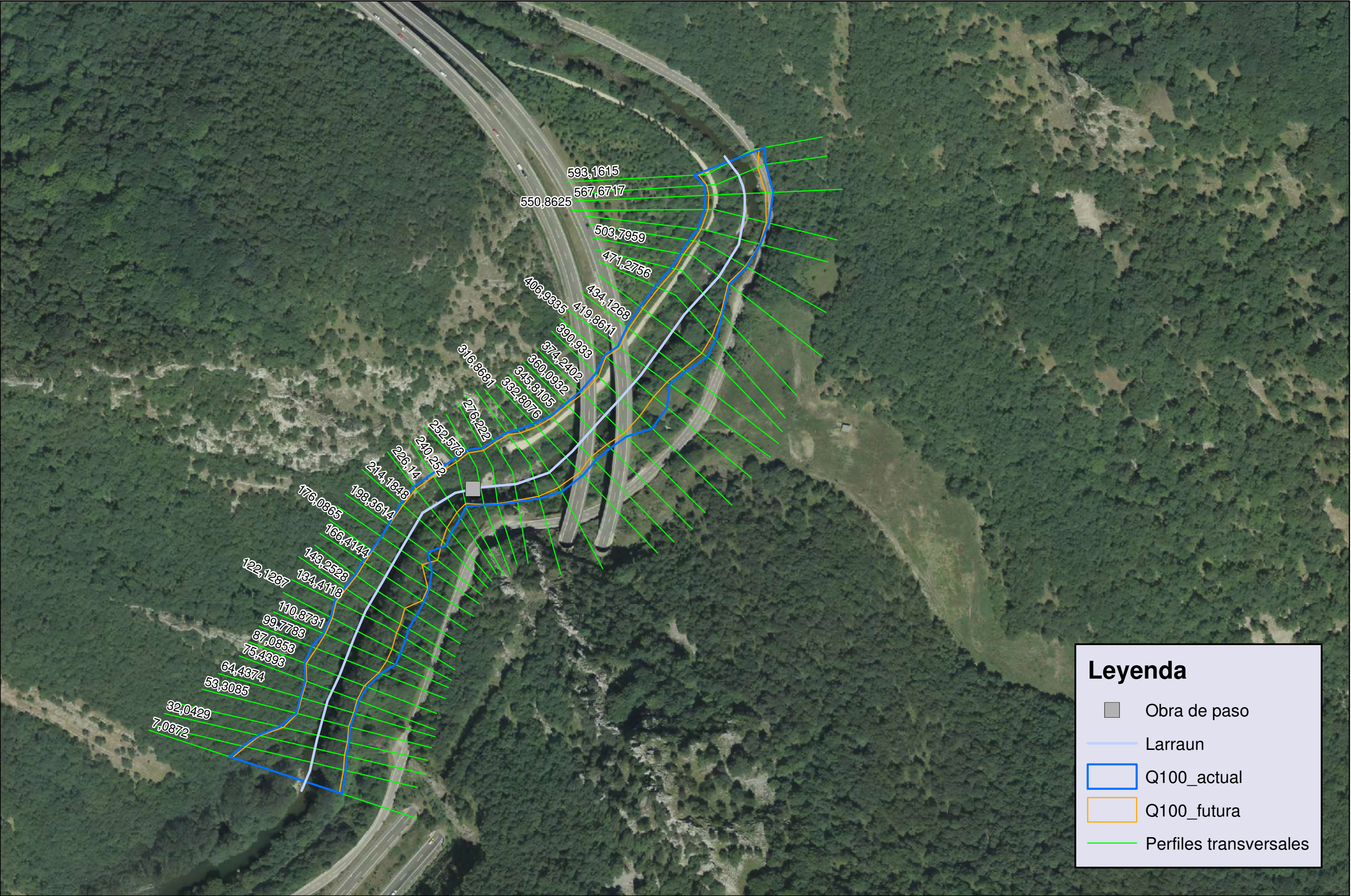


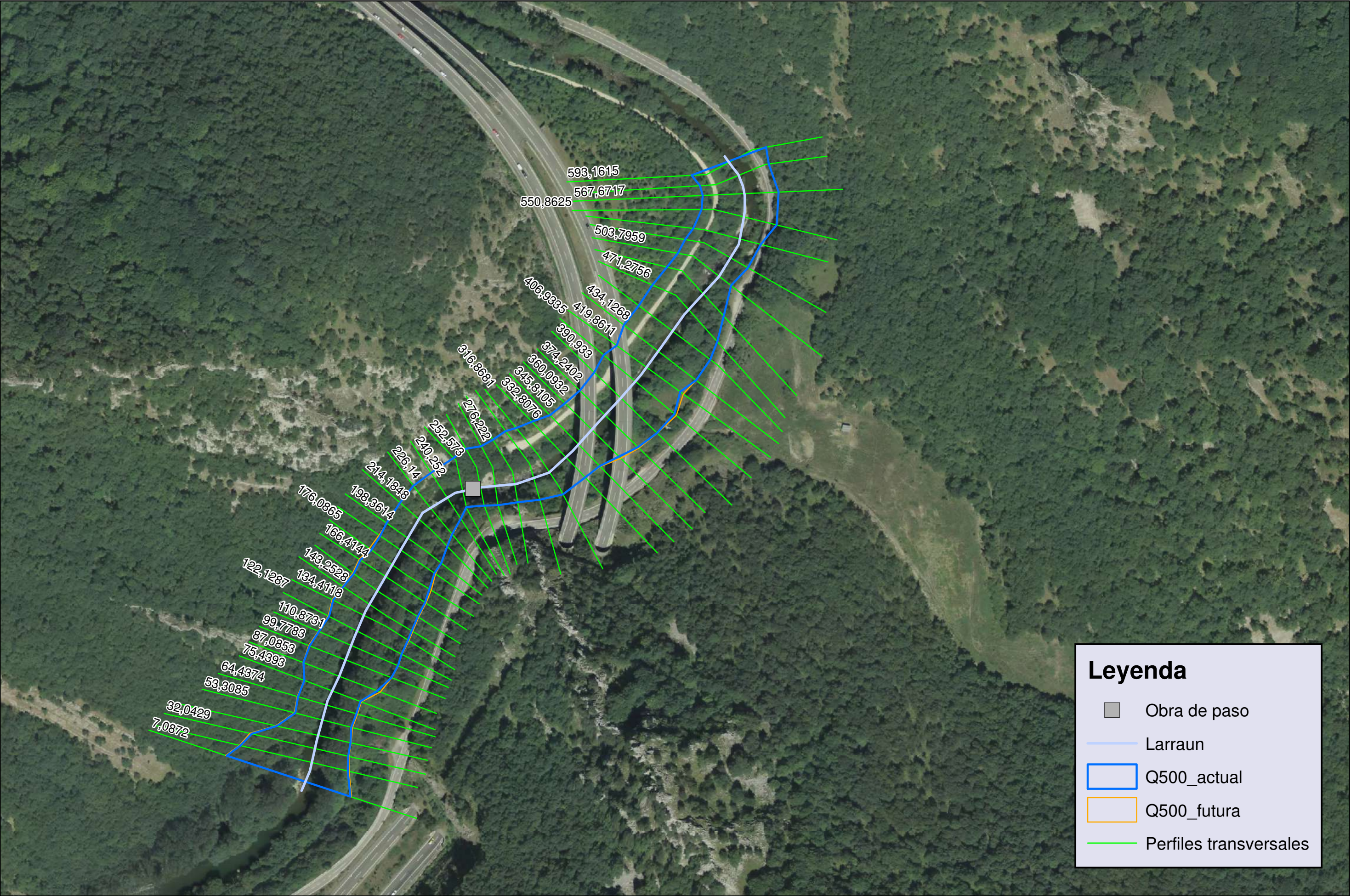
6.2. Nueva pasarela peatonal sobre el río Larraun











Leyenda

Obra de paso

Larraun

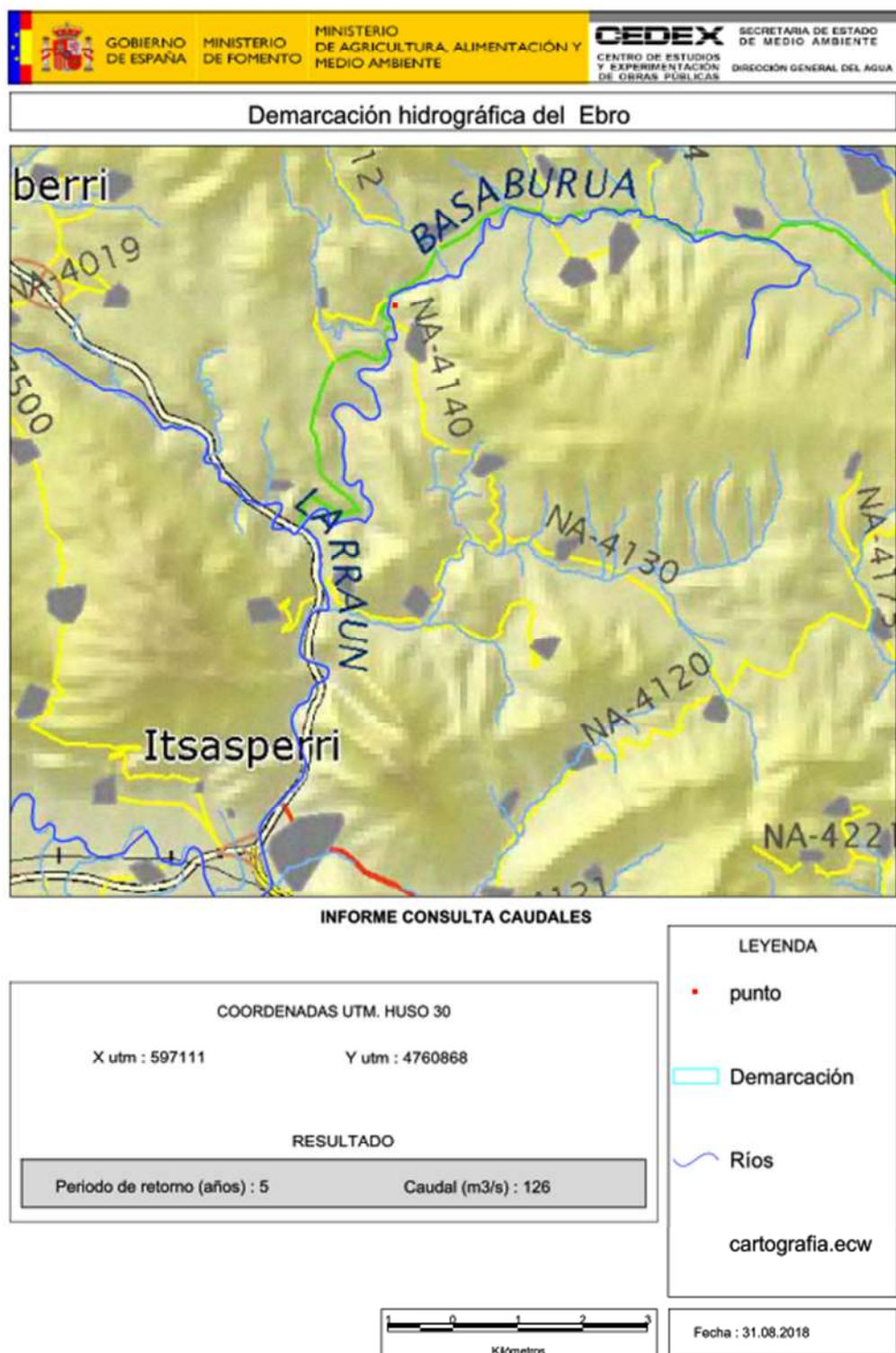
Q500_actual

Q500_futura

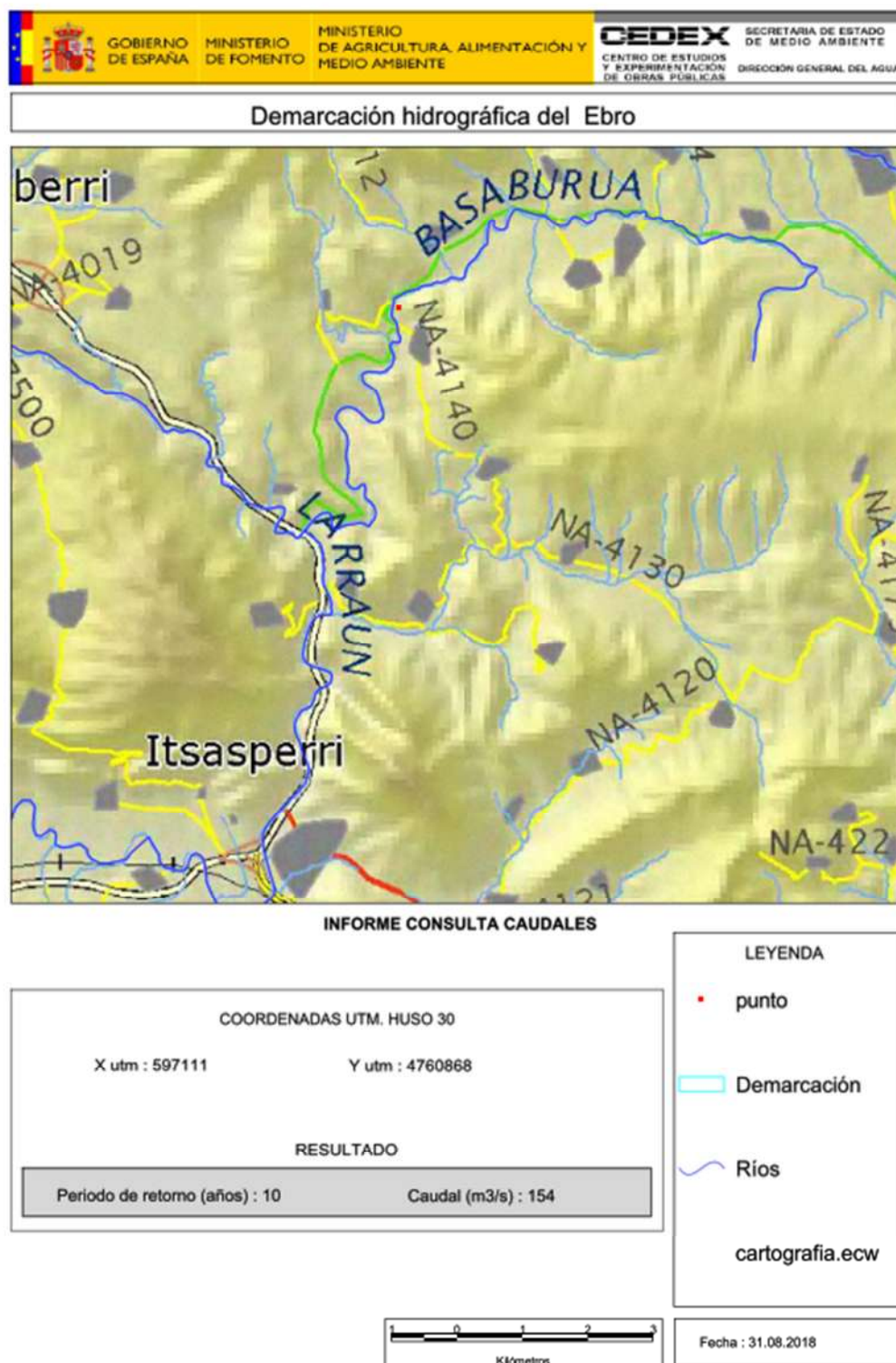
Perfiles transversales

7. Anejo 1: Informes del CAUMAX

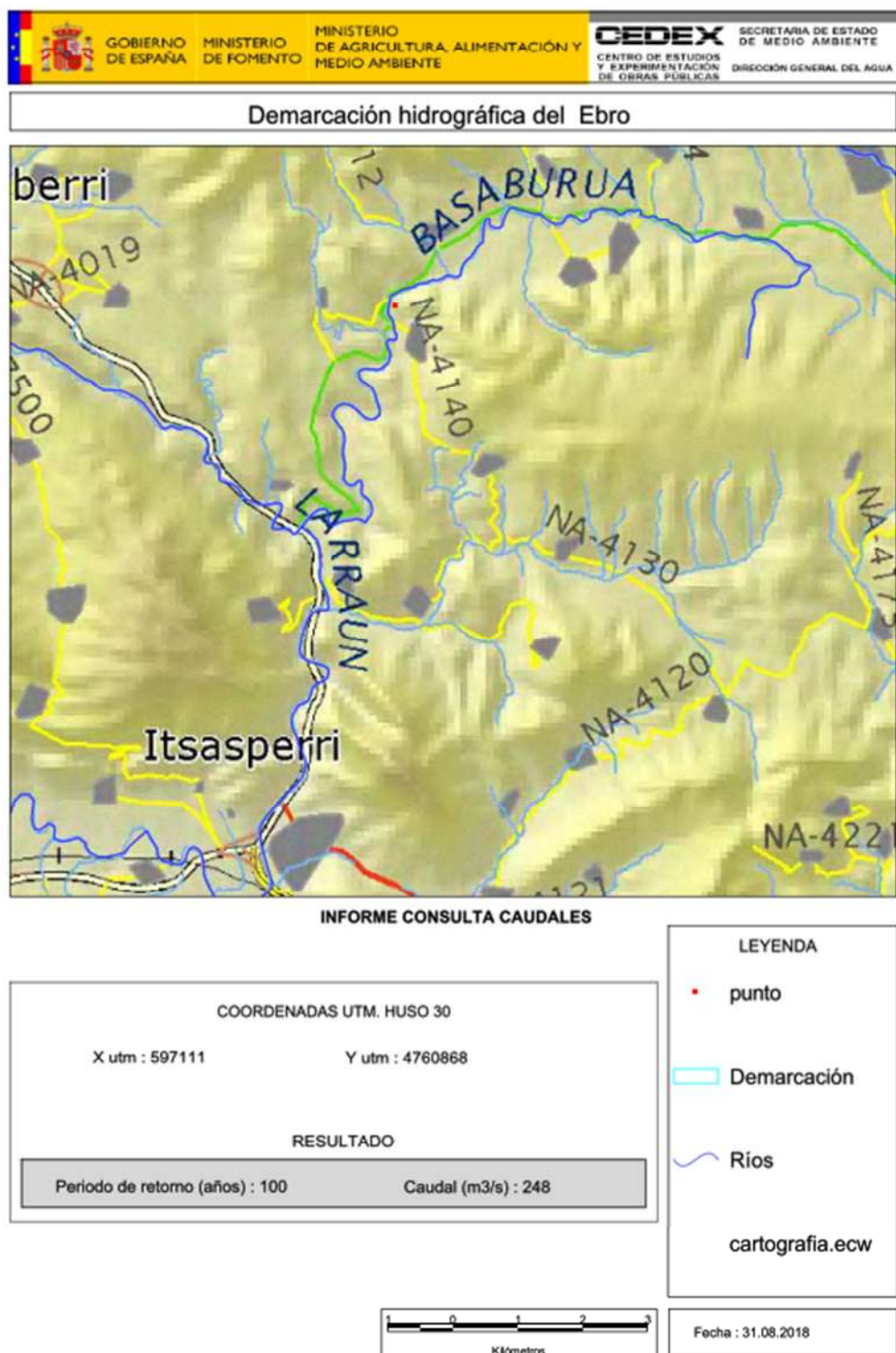
7.1. Caudal de avenida T =5 años (Q5) (Basaburua)



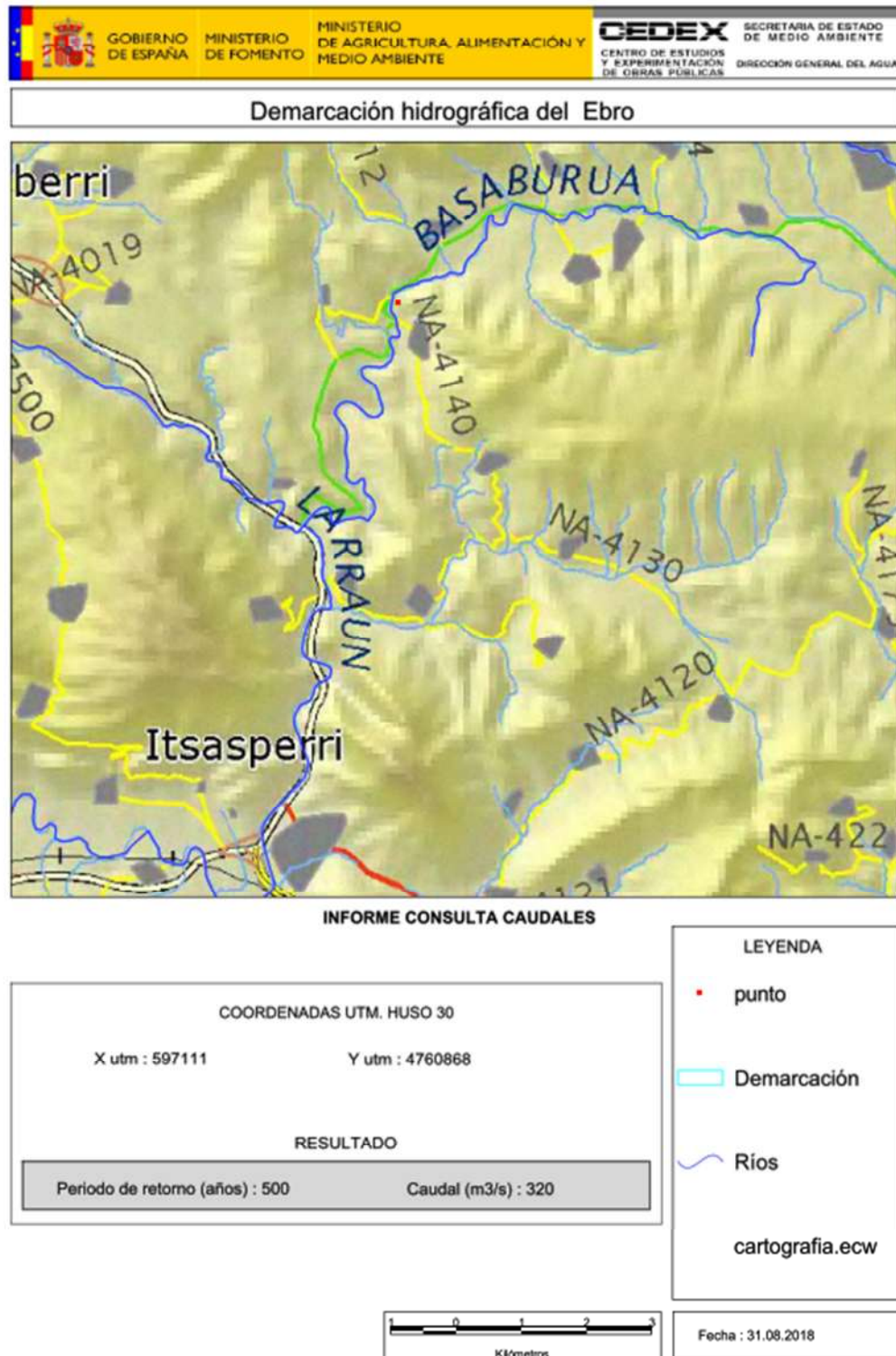
7.2. Caudal de avenida T = 10 años (Q10) (Basaburua)



7.3. Caudal de avenida T =100 años (Q100) (Basaburua)



7.4. Caudal de avenida T = 500 años (Q500) (Basaburua)



7.5. Caudal de avenida T =5 años (Q5) (Larraun)



7.6. Caudal de avenida T = 10 años (Q10) (Larraun)



7.7. Caudal de avenida T =100 años (Q100) (Larraun)



7.8. Caudal de avenida T = 500 años (Q500) (Larraun)



8. Anejo 2: Informes del HEC-RAS

8.1. Situación actual

8.1.1. Listado de resultados

NUEVA PASARELA PEATONAL SOBRE EL RÍO BASABURUA

HEC-RAS Plan: Plan 01 River: Basaburua Reach: Pasarela1

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Pasarela1	627.0179	T5	126.00	531.03	533.48	533.57	534.01	0.007841	3.59	50.40	65.29	0.87
Pasarela1	627.0179	T10	154.00	531.03	533.62	533.70	534.18	0.007848	3.79	59.87	67.89	0.88
Pasarela1	627.0179	T100	248.00	531.03	534.03	534.09	534.69	0.007844	4.32	89.91	81.99	0.91
Pasarela1	627.0179	T500	320.00	531.03	534.37	534.35	534.98	0.006476	4.31	120.06	93.05	0.85
Pasarela1	610.6354	T5	126.00	530.68	533.42	532.83	533.69	0.002492	2.48	70.14	65.28	0.52
Pasarela1	610.6354	T10	154.00	530.68	533.62	533.11	533.91	0.002541	2.64	84.12	73.42	0.53
Pasarela1	610.6354	T100	248.00	530.68	534.17	533.75	534.49	0.002506	2.98	129.62	90.31	0.54
Pasarela1	610.6354	T500	320.00	530.68	534.48		534.83	0.002534	3.20	159.72	98.44	0.55
Pasarela1	594.8831	T5	126.00	530.58	533.20	533.02	533.62	0.005063	3.09	54.29	57.84	0.71
Pasarela1	594.8831	T10	154.00	530.58	533.45	533.28	533.85	0.004357	3.11	70.18	68.58	0.67
Pasarela1	594.8831	T100	248.00	530.58	534.07		534.44	0.003360	3.22	120.19	91.29	0.62
Pasarela1	594.8831	T500	320.00	530.58	534.43		534.79	0.002933	3.27	155.13	97.70	0.59
Pasarela1	581.0595	T5	126.00	530.57	533.26		533.52	0.002609	2.43	68.26	61.63	0.52
Pasarela1	581.0595	T10	154.00	530.57	533.49		533.76	0.002565	2.57	83.44	73.41	0.53
Pasarela1	581.0595	T100	248.00	530.57	534.08		534.37	0.002304	2.82	132.80	90.21	0.52
Pasarela1	581.0595	T500	320.00	530.57	534.42		534.74	0.002242	2.99	165.22	97.38	0.52
Pasarela1	566.3447	T5	126.00	530.34	533.14		533.47	0.003384	2.73	60.83	54.07	0.59
Pasarela1	566.3447	T10	154.00	530.34	533.34		533.71	0.003485	2.94	72.41	62.88	0.61
Pasarela1	566.3447	T100	248.00	530.34	533.90		534.32	0.003370	3.33	114.16	84.85	0.62
Pasarela1	566.3447	T500	320.00	530.34	534.27		534.69	0.003036	3.43	147.84	93.81	0.60
Pasarela1	551.0699	T5	126.00	529.91	533.13		533.41	0.002499	2.46	62.81	53.47	0.51
Pasarela1	551.0699	T10	154.00	529.91	533.32		533.66	0.002704	2.70	74.57	67.65	0.54
Pasarela1	551.0699	T100	248.00	529.91	533.90		534.26	0.002562	3.01	120.50	85.09	0.55
Pasarela1	551.0699	T500	320.00	529.91	534.26		534.64	0.002431	3.16	152.80	91.75	0.54
Pasarela1	535.095	T5	126.00	529.89	533.14	532.22	533.36	0.001967	2.08	63.20	43.43	0.45
Pasarela1	535.095	T10	154.00	529.89	533.33	532.43	533.60	0.002173	2.31	72.08	51.20	0.48
Pasarela1	535.095	T100	248.00	529.89	533.85	533.00	534.22	0.002461	2.81	110.32	77.69	0.53
Pasarela1	535.095	T500	320.00	529.89	534.16	533.66	534.59	0.002638	3.11	135.10	86.06	0.56
Pasarela1	523.7237	T5	126.00	529.97	533.08		533.33	0.002239	2.22	59.77	36.37	0.48
Pasarela1	523.7237	T10	154.00	529.97	533.24		533.56	0.002625	2.53	66.53	51.51	0.53
Pasarela1	523.7237	T100	248.00	529.97	533.70	533.07	534.17	0.003286	3.18	98.01	77.17	0.61
Pasarela1	523.7237	T500	320.00	529.97	533.94	533.71	534.53	0.003804	3.62	117.66	87.89	0.67
Pasarela1	510.5557	T5	126.00	529.80	533.10		533.29	0.001393	1.98	73.36	60.14	0.39
Pasarela1	510.5557	T10	154.00	529.80	533.28		533.51	0.001582	2.20	84.87	66.98	0.42
Pasarela1	510.5557	T100	248.00	529.80	533.75		534.10	0.002043	2.78	120.11	80.79	0.49
Pasarela1	510.5557	T500	320.00	529.80	534.02		534.44	0.002365	3.15	142.44	87.36	0.54
Pasarela1	496.2253	T5	126.00	529.90	532.98		533.26	0.002314	2.36	63.50	67.24	0.50
Pasarela1	496.2253	T10	154.00	529.90	533.16		533.47	0.002509	2.58	75.47	69.84	0.52
Pasarela1	496.2253	T100	248.00	529.90	533.64		534.06	0.002859	3.11	112.47	81.10	0.58
Pasarela1	496.2253	T500	320.00	529.90	533.90		534.39	0.003194	3.47	133.94	85.27	0.62
Pasarela1	481.1649	T5	126.00	529.96	532.93		533.22	0.002808	2.45	61.73	59.90	0.54
Pasarela1	481.1649	T10	154.00	529.96	533.09		533.43	0.003106	2.70	71.85	67.01	0.58
Pasarela1	481.1649	T100	248.00	529.96	533.52	533.22	534.00	0.003682	3.31	105.01	83.44	0.65
Pasarela1	481.1649	T500	320.00	529.96	533.78	533.60	534.33	0.003966	3.65	127.03	87.52	0.68
Pasarela1	469.1323	T5	126.00	529.91	532.91		533.18	0.002497	2.32	64.50	69.60	0.51
Pasarela1	469.1323	T10	154.00	529.91	533.07		533.38	0.002734	2.55	76.24	76.43	0.54
Pasarela1	469.1323	T100	248.00	529.91	533.53		533.93	0.003086	3.06	113.79	88.12	0.59
Pasarela1	469.1323	T500	320.00	529.91	533.78		534.25	0.003332	3.38	137.14	91.89	0.62
Pasarela1	457.3146	T5	126.00	529.92	532.95		533.13	0.001579	1.94	82.38	73.30	0.41
Pasarela1	457.3146	T10	154.00	529.92	533.12		533.32	0.001725	2.13	95.00	76.98	0.43
Pasarela1	457.3146	T100	248.00	529.92	533.57		533.86	0.002091	2.63	133.10	89.91	0.49
Pasarela1	457.3146	T500	320.00	529.92	533.83		534.18	0.002340	2.94	157.01	94.74	0.53
Pasarela1	443.1477	T5	126.00	530.14	532.83	532.53	533.09	0.003481	2.39	65.77	69.29	0.58
Pasarela1	443.1477	T10	154.00	530.14	532.99	532.69	533.28	0.003520	2.55	77.79	75.23	0.60
Pasarela1	443.1477	T100	248.00	530.14	533.49	533.10	533.82	0.003233	2.86	118.97	87.22	0.59
Pasarela1	443.1477	T500	320.00	530.14	533.75		534.13	0.003443	3.16	142.23	93.75	0.62
Pasarela1	426.4706	T5	126.00	530.45	532.49	532.49	532.98	0.007496	3.23	47.13	56.84	0.84
Pasarela1	426.4706	T10	154.00	530.45	532.67	532.67	533.18	0.007009	3.36	57.73	61.78	0.83
Pasarela1	426.4706	T100	248.00	530.45	533.14	533.14	533.73	0.006350	3.77	90.62	78.81	0.82
Pasarela1	426.4706	T500	320.00	530.45	533.52		534.06	0.005087	3.76	121.81	87.31	0.75
Pasarela1	409.0389	T5	126.00	529.71	531.95	532.20	532.78	0.014129	4.07	33.01	39.85	1.12
Pasarela1	409.0389	T10	154.00	529.71	532.16	532.39	533.00	0.012606	4.14	42.51	51.21	1.08
Pasarela1	409.0389	T100	248.00	529.71	533.17	532.81	533.59	0.003819	3.21	105.61	77.35	0.65
Pasarela1	409.0389	T500	320.00	529.71	533.53		533.96	0.003420	3.33	135.33	84.30	0.63
Pasarela1	391.7242	T5	126.00	529.46	532.02	532.02	532.59	0.006693	3.50	44.02	45.24	0.80
Pasarela1	391.7242	T10	154.00	529.46	532.22	532.22	532.82	0.006447	3.66	53.52	47.94	0.80
Pasarela1	391.7242	T100	248.00	529.46	532.73	532.73	533.48	0.006538	4.25	80.80	61.00	0.84
Pasarela1	391.7242	T500	320.00	529.46	533.12	533.12	533.86	0.005790	4.39	106.92	72.53	0.81
Pasarela1	376.7623	T5	126.00	529.80	532.10	531.79	532.43	0.004008	2.69	56.61	47.59	0.63
Pasarela1	376.7623	T10	154.00	529.80	532.26	532.00	532.65	0.004304	2.94	64.28	49.33	0.66
Pasarela1	376.7623	T100	248.00	529.80	532.64	532.39	533.26	0.005717	3.80	85.64	63.29	0.78

HEC-RAS Plan: Plan 01 River: Basaburua Reach: Pasarela1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Pasarela1	376.7623	T500	320.00	529.80	532.56	532.80	533.70	0.010996	5.14	80.35	59.89	1.07
Pasarela1	358.2802	T5	126.00	529.99	531.81	531.81	532.31	0.008482	3.37	45.76	45.98	0.88
Pasarela1	358.2802	T10	154.00	529.99	531.97	531.97	532.53	0.008510	3.59	53.18	47.75	0.89
Pasarela1	358.2802	T100	248.00	529.99	532.50	532.50	533.15	0.007557	3.99	82.64	63.75	0.87
Pasarela1	358.2802	T500	320.00	529.99	532.74	532.74	533.50	0.008097	4.40	98.43	68.55	0.91
Pasarela1	341.0469	T5	126.00	529.18	531.64	531.16	531.94	0.003308	2.54	58.95	47.22	0.58
Pasarela1	341.0469	T10	154.00	529.18	531.84	531.38	532.18	0.003463	2.75	69.03	53.80	0.60
Pasarela1	341.0469	T100	248.00	529.18	532.37	532.00	532.80	0.003618	3.19	100.89	62.98	0.63
Pasarela1	341.0469	T500	320.00	529.18	532.70	532.30	533.19	0.003742	3.47	122.98	69.99	0.65
Pasarela1	327.1814	T5	126.00	529.01	531.23	531.23	531.84	0.008759	3.58	40.59	39.32	0.91
Pasarela1	327.1814	T10	154.00	529.01	531.45	531.45	532.08	0.008038	3.69	49.95	44.68	0.88
Pasarela1	327.1814	T100	248.00	529.01	532.02	532.02	532.71	0.006788	4.04	80.12	59.09	0.85
Pasarela1	327.1814	T500	320.00	529.01	532.25	532.25	533.09	0.007433	4.51	94.51	62.78	0.90
Pasarela1	307.5106	T5	126.00	529.06	530.73	530.94	531.59	0.016184	4.14	32.05	33.02	1.19
Pasarela1	307.5106	T10	154.00	529.06	530.92	531.15	531.85	0.015120	4.34	38.28	36.62	1.17
Pasarela1	307.5106	T100	248.00	529.06	531.47	531.74	532.51	0.012015	4.70	62.96	57.61	1.10
Pasarela1	307.5106	T500	320.00	529.06	531.71	532.01	532.88	0.012310	5.10	77.05	59.83	1.13
Pasarela1	293.7244	T5	126.00	528.57	530.69	529.96	530.89	0.002221	2.00	65.77	43.49	0.47
Pasarela1	293.7244	T10	154.00	528.57	530.89	530.13	531.13	0.002335	2.19	74.80	46.55	0.49
Pasarela1	293.7244	T100	248.00	528.57	531.49	530.65	531.82	0.002422	2.60	107.52	59.97	0.52
Pasarela1	293.7244	T500	320.00	528.57	531.91	530.98	532.27	0.002277	2.78	133.55	63.66	0.51
Pasarela1	279.7701	T5	126.00	528.50	530.66		530.86	0.002195	1.98	65.21	41.44	0.47
Pasarela1	279.7701	T10	154.00	528.50	530.86		531.10	0.002301	2.17	73.66	43.98	0.49
Pasarela1	279.7701	T100	248.00	528.50	531.43		531.78	0.002477	2.65	99.98	47.83	0.53
Pasarela1	279.7701	T500	320.00	528.50	531.81		532.23	0.002549	2.95	118.31	50.25	0.55
Pasarela1	262.8788	T5	126.00	528.38	530.46		530.80	0.004382	2.64	52.43	39.35	0.65
Pasarela1	262.8788	T10	154.00	528.38	530.63		531.03	0.004605	2.89	59.19	40.51	0.68
Pasarela1	262.8788	T100	248.00	528.38	531.12		531.70	0.005050	3.54	79.74	43.78	0.74
Pasarela1	262.8788	T500	320.00	528.38	531.42		532.14	0.005381	3.96	93.28	46.15	0.78
Pasarela1	250.8258	T5	126.00	528.54	530.41		530.69	0.006357	2.69	54.70	41.92	0.75
Pasarela1	250.8258	T10	154.00	528.54	530.59		530.91	0.006407	2.89	62.30	43.16	0.76
Pasarela1	250.8258	T100	248.00	528.54	531.11		531.56	0.006292	3.41	86.05	48.09	0.79
Pasarela1	250.8258	T500	320.00	528.54	531.44		531.98	0.006278	3.79	102.64	52.02	0.81
Pasarela1	236.6296	T5	126.00	528.13	529.99	529.99	530.53	0.009504	3.40	41.63	38.17	0.93
Pasarela1	236.6296	T10	154.00	528.13	530.17	530.17	530.76	0.009061	3.58	50.42	47.14	0.92
Pasarela1	236.6296	T100	248.00	528.13	530.62	530.62	531.40	0.008890	4.21	72.59	51.58	0.95
Pasarela1	236.6296	T500	320.00	528.13	530.94	530.94	531.82	0.008434	4.53	89.82	55.62	0.95
Pasarela1	221.6618	T5	126.00	527.74	529.59	529.73	530.34	0.012812	3.96	35.57	34.76	1.08
Pasarela1	221.6618	T10	154.00	527.74	529.80	529.92	530.58	0.011528	4.08	43.00	36.87	1.04
Pasarela1	221.6618	T100	248.00	527.74	530.40	530.44	531.25	0.008849	4.38	67.77	47.59	0.96
Pasarela1	221.6618	T500	320.00	527.74	530.73	530.78	531.68	0.008398	4.70	85.16	56.62	0.95
Pasarela1	205.3876	T5	126.00	526.50	529.86	529.03	530.08	0.002274	2.10	63.56	39.01	0.48
Pasarela1	205.3876	T10	154.00	526.50	530.05	529.24	530.31	0.002515	2.32	71.38	44.56	0.51
Pasarela1	205.3876	T100	248.00	526.50	530.56	529.83	530.96	0.002903	2.88	97.01	55.32	0.57
Pasarela1	205.3876	T500	320.00	526.50	530.87	530.24	531.37	0.003188	3.25	115.47	64.21	0.61
Pasarela1	191.2041	T5	126.00	526.19	529.85		530.04	0.001385	2.01	74.66	47.53	0.39
Pasarela1	191.2041	T10	154.00	526.19	530.04		530.27	0.001579	2.24	83.97	52.25	0.42
Pasarela1	191.2041	T100	248.00	526.19	530.56		530.91	0.002029	2.84	115.56	67.17	0.49
Pasarela1	191.2041	T500	320.00	526.19	530.88		531.31	0.002271	3.19	138.31	74.90	0.53
Pasarela1	178.9972	T5	126.00	527.34	529.44	529.44	529.97	0.008287	3.46	44.42	44.01	0.89
Pasarela1	178.9972	T10	154.00	527.34	529.60	529.60	530.20	0.008198	3.69	52.05	46.72	0.90
Pasarela1	178.9972	T100	248.00	527.34	530.10	530.10	530.83	0.007650	4.22	77.75	57.07	0.90
Pasarela1	178.9972	T500	320.00	527.34	530.42	530.42	531.22	0.007383	4.53	96.82	64.52	0.91
Pasarela1	165.5926	T5	126.00	527.22	529.34	529.33	529.82	0.008537	3.39	47.56	50.70	0.89
Pasarela1	165.5926	T10	154.00	527.22	529.36	529.48	530.05	0.012027	4.07	48.65	51.15	1.06
Pasarela1	165.5926	T100	248.00	527.22	529.69	529.93	530.67	0.013745	4.96	66.74	58.28	1.17
Pasarela1	165.5926	T500	320.00	527.22	529.90	530.20	531.05	0.014362	5.46	79.61	62.24	1.22
Pasarela1	150.8167	T5	126.00	526.91	529.38		529.67	0.004440	2.78	63.19	59.61	0.66
Pasarela1	150.8167	T10	154.00	526.91	529.50	529.29	529.85	0.005036	3.09	70.24	62.26	0.71
Pasarela1	150.8167	T100	248.00	526.91	529.84	529.71	530.36	0.006246	3.84	92.90	68.77	0.82
Pasarela1	150.8167	T500	320.00	526.91	529.64	529.93	530.81	0.015637	5.72	79.65	65.19	1.27
Pasarela1	137.549	T5	126.00	527.08	529.26		529.58	0.006967	3.07	58.87	64.11	0.80
Pasarela1	137.549	T10	154.00	527.08	529.38	529.29	529.75	0.007280	3.31	67.07	66.79	0.83
Pasarela1	137.549	T100	248.00	527.08	529.75	529.64	530.24	0.007795	3.92	93.08	76.83	0.89
Pasarela1	137.549	T500	320.00	527.08	529.97	529.89	530.55	0.008193	4.31	110.60	83.17	0.93
Pasarela1	124.4547	T5	126.00	527.46	529.14	529.01	529.41	0.008594	2.76	59.59	71.10	0.85
Pasarela1	124.4547	T10	154.00	527.46	529.29	529.13	529.58	0.007978	2.89	69.98	74.13	0.84
Pasarela1	124.4547	T100	248.00	527.46	529.69	529.46	530.05	0.006989	3.28	102.12	85.01	0.82
Pasarela1	124.4547	T500	320.00	527.46	529.93	529.68	530.35	0.007027	3.60	122.78	93.38	0.84
Pasarela1	110.1663	T5	126.00	527.04	528.83	528.83	529.23	0.009390	3.25	52.77	64.89	0.91

HEC-RAS Plan: Plan 01 River: Basaburua Reach: Pasarela1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Pasarela1	110.1663	T10	154.00	527.04	528.95	528.95	529.40	0.009524	3.47	60.73	67.45	0.93
Pasarela1	110.1663	T100	248.00	527.04	529.32	529.32	529.88	0.009157	3.99	88.03	79.04	0.95
Pasarela1	110.1663	T500	320.00	527.04	529.56	529.56	530.18	0.008956	4.28	107.08	85.73	0.96
Pasarela1	94.65714	T5	126.00	526.75	528.77	528.57	529.02	0.004701	2.65	66.51	67.27	0.67
Pasarela1	94.65714	T10	154.00	526.75	528.90	528.69	529.19	0.004932	2.86	75.60	69.61	0.69
Pasarela1	94.65714	T100	248.00	526.75	529.32	529.04	529.69	0.004989	3.32	106.59	78.65	0.72
Pasarela1	94.65714	T500	320.00	526.75	529.56	529.28	530.00	0.005193	3.64	126.47	84.23	0.75
Pasarela1	77.06392	T5	126.00	526.65	528.77		528.91	0.002962	2.05	82.89	71.85	0.53
Pasarela1	77.06392	T10	154.00	526.65	528.91		529.08	0.003189	2.25	92.62	73.94	0.56
Pasarela1	77.06392	T100	248.00	526.65	529.33		529.57	0.003446	2.72	125.74	82.10	0.60
Pasarela1	77.06392	T500	320.00	526.65	529.58		529.87	0.003666	3.02	146.49	85.77	0.63
Pasarela1	60.04271	T5	126.00	527.84	528.65		528.83	0.008028	1.84	66.03	76.11	0.75
Pasarela1	60.04271	T10	154.00	527.84	528.79		528.99	0.007452	2.04	76.92	78.03	0.75
Pasarela1	60.04271	T100	248.00	527.84	529.26		529.49	0.005650	2.45	116.32	87.49	0.71
Pasarela1	60.04271	T500	320.00	527.84	529.51		529.79	0.005423	2.72	138.88	90.46	0.72
Pasarela1	43.05642	T5	126.00	526.59	528.54		528.69	0.003659	2.17	81.95	81.58	0.58
Pasarela1	43.05642	T10	154.00	526.59	528.69		528.86	0.003568	2.29	94.19	82.83	0.58
Pasarela1	43.05642	T100	248.00	526.59	529.17		529.38	0.003292	2.62	136.10	95.26	0.58
Pasarela1	43.05642	T500	320.00	526.59	529.43		529.68	0.003455	2.90	161.00	102.19	0.61
Pasarela1	25.15587	T5	126.00	526.27	528.42	528.20	528.61	0.003979	2.43	76.16	76.01	0.61
Pasarela1	25.15587	T10	154.00	526.27	528.57	528.31	528.78	0.003951	2.55	87.69	77.08	0.61
Pasarela1	25.15587	T100	248.00	526.27	529.02	528.60	529.29	0.004501	3.08	129.03	111.87	0.67
Pasarela1	25.15587	T500	320.00	526.27	529.35	528.79	529.60	0.003508	2.94	167.22	113.50	0.60
Pasarela1	9.809587	T5	126.00	526.12	528.30	528.16	528.56	0.004492	2.72	69.26	70.65	0.65
Pasarela1	9.809587	T10	154.00	526.12	528.45	528.28	528.72	0.004495	2.84	80.07	71.47	0.65
Pasarela1	9.809587	T100	248.00	526.12	528.92	528.57	529.24	0.004491	3.19	115.18	81.90	0.67
Pasarela1	9.809587	T500	320.00	526.12	529.22	528.75	529.55	0.004498	3.39	151.25	111.79	0.68

NUEVA PASARELA PEATONAL SOBRE EL RÍO LARRAUN

HEC-RAS Plan: Plan 01 River: Larraun Reach: Larraun

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Hydr Depth (m)	Flow Area (m2)	Top Width (m)	Froude # Chl
Larraun	593.1615	T5	305.00	456.13	461.26	459.94	461.76	0.002257	3.20	2.49	114.19	45.87	0.51
Larraun	593.1615	T10	375.00	456.13	461.65	460.39	462.24	0.002428	3.52	2.76	132.23	47.98	0.54
Larraun	593.1615	T100	604.00	456.13	462.91	461.52	463.70	0.002429	4.17	3.58	198.18	55.32	0.56
Larraun	593.1615	T500	784.00	456.13	463.78	462.24	464.69	0.002361	4.53	4.25	247.92	58.28	0.57
Larraun	581.5397	T5	305.00	456.73	460.21	460.21	461.62	0.008984	5.29	2.79	59.82	21.41	0.99
Larraun	581.5397	T10	375.00	456.73	460.77	460.77	462.12	0.007268	5.26	2.19	85.43	39.04	0.91
Larraun	581.5397	T100	604.00	456.73	461.89	461.89	463.57	0.006497	6.02	2.88	134.33	46.72	0.91
Larraun	581.5397	T500	784.00	456.73	462.98	462.58	464.58	0.004844	6.00	3.59	188.38	52.46	0.81
Larraun	567.6717	T5	305.00	456.12	459.53	460.02	461.42	0.014090	6.21	1.95	55.69	28.57	1.24
Larraun	567.6717	T10	375.00	456.12	460.61	460.43	461.85	0.006046	5.14	2.37	95.92	40.50	0.86
Larraun	567.6717	T100	604.00	456.12	461.90	461.42	463.40	0.005151	5.80	3.11	152.41	48.98	0.83
Larraun	567.6717	T500	784.00	456.12	463.06		464.46	0.003839	5.77	3.90	213.29	54.70	0.75
Larraun	550.8625	T5	305.00	455.92	460.33	459.59	461.12	0.003674	4.19	2.51	103.59	41.32	0.68
Larraun	550.8625	T10	375.00	455.92	460.77		461.66	0.003669	4.51	2.86	122.29	42.77	0.70
Larraun	550.8625	T100	604.00	455.92	462.06		463.22	0.003537	5.27	3.80	180.19	47.45	0.71
Larraun	550.8625	T500	784.00	455.92	463.09		464.37	0.003211	5.62	4.19	232.32	55.43	0.70
Larraun	534.7523	T5	305.00	456.36	460.19		461.05	0.004801	4.61	2.52	106.92	42.51	0.78
Larraun	534.7523	T10	375.00	456.36	460.69		461.60	0.004394	4.82	2.96	128.62	43.44	0.76
Larraun	534.7523	T100	604.00	456.36	462.00		463.17	0.004046	5.57	4.04	187.10	46.33	0.77
Larraun	534.7523	T500	784.00	456.36	463.05		464.32	0.003575	5.89	4.75	237.58	50.02	0.74
Larraun	519.3437	T5	305.00	456.37	460.16		460.95	0.004781	4.47	2.65	106.93	40.32	0.77
Larraun	519.3437	T10	375.00	456.37	460.67		461.52	0.004399	4.69	3.06	127.50	41.65	0.75
Larraun	519.3437	T100	604.00	456.37	461.97		463.10	0.004100	5.48	3.99	184.46	46.23	0.76
Larraun	519.3437	T500	784.00	456.37	463.03		464.25	0.003536	5.76	4.69	235.92	50.26	0.73
Larraun	503.7959	T5	305.00	455.13	460.32		460.81	0.002724	3.57	3.47	130.03	37.50	0.56
Larraun	503.7959	T10	375.00	455.13	460.82		461.38	0.002840	3.83	3.85	149.09	38.74	0.58
Larraun	503.7959	T100	604.00	455.13	462.14		462.95	0.003028	4.66	4.76	202.60	42.57	0.62
Larraun	503.7959	T500	784.00	455.13	463.19		464.12	0.002847	5.05	5.44	248.67	45.71	0.62
Larraun	486.8042	T5	305.00	454.99	460.37		460.75	0.001289	3.04	3.52	158.87	45.12	0.43
Larraun	486.8042	T10	375.00	454.99	460.87		461.32	0.001368	3.33	3.93	181.68	46.26	0.45
Larraun	486.8042	T100	604.00	454.99	462.20		462.88	0.001612	4.17	4.82	245.86	51.02	0.50
Larraun	486.8042	T500	784.00	454.99	463.25		464.05	0.001605	4.57	5.44	302.01	55.52	0.52
Larraun	471.2756	T5	305.00	454.93	460.37		460.73	0.001244	2.97	3.38	169.03	50.04	0.42
Larraun	471.2756	T10	375.00	454.93	460.87		461.29	0.001312	3.25	3.72	194.83	52.43	0.44
Larraun	471.2756	T100	604.00	454.93	462.23		462.83	0.001481	3.99	4.57	270.58	59.25	0.48
Larraun	471.2756	T500	784.00	454.93	463.32		463.99	0.001419	4.30	5.34	337.02	63.14	0.48
Larraun	451.8847	T5	305.00	454.83	460.38		460.69	0.001124	2.85	3.52	183.01	51.98	0.40
Larraun	451.8847	T10	375.00	454.83	460.89		461.25	0.001182	3.11	3.94	209.77	53.25	0.42
Larraun	451.8847	T100	604.00	454.83	462.24		462.79	0.001384	3.88	4.72	285.63	60.47	0.47
Larraun	451.8847	T500	784.00	454.83	463.33		463.95	0.001335	4.19	5.49	353.68	64.43	0.47
Larraun	434.1268	T5	305.00	455.08	460.18		460.65	0.001816	3.37	3.02	142.53	47.24	0.50
Larraun	434.1268	T10	375.00	455.08	460.67		461.21	0.001883	3.67	3.43	165.65	48.23	0.51
Larraun	434.1268	T100	604.00	455.08	461.95		462.74	0.002121	4.51	4.36	230.10	52.77	0.57
Larraun	434.1268	T500	784.00	455.08	462.90		463.88	0.002242	5.08	4.35	284.88	65.43	0.60
Larraun	419.8611	T5	305.00	455.41	459.79		460.59	0.003653	4.23	2.51	101.53	40.50	0.67
Larraun	419.8611	T10	375.00	455.41	460.21		461.14	0.003818	4.62	2.83	118.64	41.89	0.70
Larraun	419.8611	T100	604.00	455.41	461.25	460.65	462.64	0.004492	5.76	3.57	164.37	46.07	0.79
Larraun	419.8611	T500	784.00	455.41	461.90	461.37	463.75	0.005179	6.67	3.48	196.69	56.51	0.86
Larraun	406.9335	T5	305.00	455.28	459.79	458.83	460.52	0.003094	4.06	2.51	109.01	43.42	0.63
Larraun	406.9335	T10	375.00	455.28	460.21	459.40	461.07	0.003228	4.42	2.86	127.67	44.64	0.66
Larraun	406.9335	T100	604.00	455.28	461.22	460.49	462.57	0.004067	5.66	3.04	178.10	58.51	0.76
Larraun	406.9335	T500	784.00	455.28	462.17	460.68	463.56	0.003584	5.90	3.59	238.00	66.26	0.74
Larraun	390.933	T5	305.00	455.78	459.12	459.12	460.40	0.007205	5.18	1.98	76.21	38.41	0.93
Larraun	390.933	T10	375.00	455.78	459.56	459.56	460.94	0.006728	5.46	2.27	93.65	41.28	0.92
Larraun	390.933	T100	604.00	455.78	461.12	460.58	462.50	0.004469	5.66	2.98	169.02	56.78	0.80
Larraun	390.933	T500	784.00	455.78	462.13		463.49	0.003681	5.78	3.66	229.72	62.79	0.74
Larraun	374.2402	T5	305.00	455.06	459.31	458.39	460.00	0.003013	3.81	2.65	102.14	38.60	0.62
Larraun	374.2402	T10	375.00	455.06	459.82	458.82	460.58	0.002882	4.05	3.01	122.50	40.76	0.62
Larraun	374.2402	T100	604.00	455.06	461.39		462.31	0.002404	4.54	4.11	191.16	46.56	0.60
Larraun	374.2402	T500	784.00	455.06	462.23		463.37	0.002558	5.12	3.99	232.52	58.34	0.63
Larraun	360.0932	T5	305.00	455.14	458.96	458.46	459.92	0.004621	4.45	2.24	84.73	37.88	0.76
Larraun	360.0932	T10	375.00	455.14	459.50	458.97	460.51	0.004129	4.63	2.66	105.67	39.70	0.73
Larraun	360.0932	T100	604.00	455.14	461.16		462.25	0.002981	4.95	3.90	176.27	45.17	0.66
Larraun	360.0932	T500	784.00	455.14	462.00		463.32	0.003055	5.49	3.98	217.22	54.57	0.68
Larraun	345.8105	T5	305.00	454.93	458.89	458.54	459.85	0.004702	4.52	2.37	89.21	37.58	0.76
Larraun	345.8105	T10	375.00	454.93	459.45		460.44	0.004117	4.67	2.82	110.78	39.28	0.73
Larraun	345.8105	T100	604.00	454.93	461.13		462.20	0.002989	4.99	4.00	181.76	45.42	0.66
Larraun	345.8105	T500	784.00	454.93	461.99		463.26	0.003029	5.51	4.35	223.00	51.30	0.68
Larraun	332.8076	T5	305.00	455.17	458.90		459.76	0.004418	4.44	2.40	102.21	42.63	0.75
Larraun	332.8076	T10	375.00	455.17	459.49		460.35	0.003738	4.52	2.86	128.05	44.81	0.71
Larraun	332.8076	T100	604.00	455.17	461.21		462.12	0.002637	4.78	4.10	210.71	51.44	0.63
Larraun	332.8076	T500	784.00	455.17	462.10		463.16	0.002621	5.24	4.66	258.32	55.46	0.64
Larraun	316.8681	T5	305.00	455.05	459.01		459.63	0.003261	3.92	2.76	124.04	45.02	0.65

HEC-RAS Plan: Plan 01 River: Larraun Reach: Larraun (Continued)

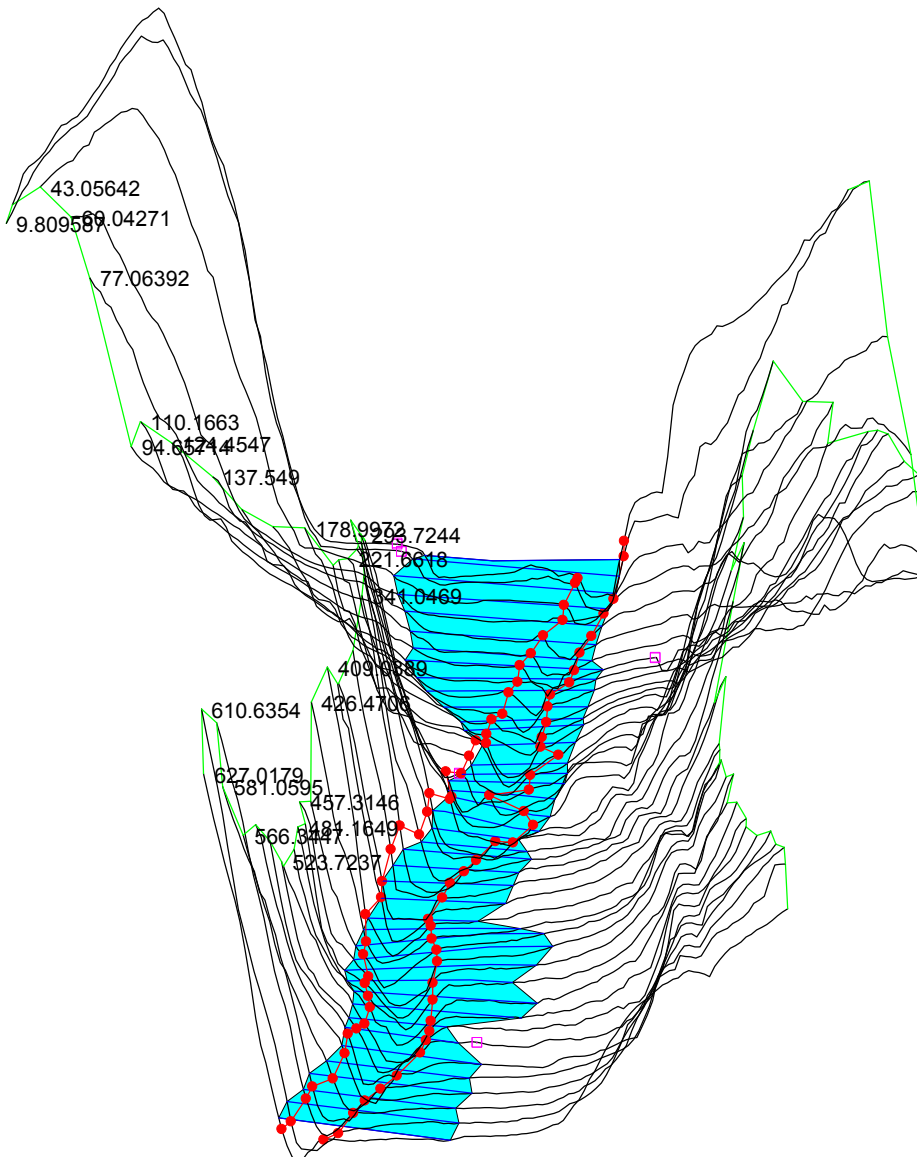
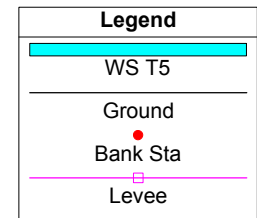
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Hydr Depth (m)	Flow Area (m2)	Top Width (m)	Froude # Chl
Larraun	316.8681	T10	375.00	455.05	459.60		460.24	0.002880	4.06	3.20	150.83	47.16	0.62
Larraun	316.8681	T100	604.00	455.05	461.31		462.02	0.002169	4.40	4.34	238.55	54.91	0.57
Larraun	316.8681	T500	784.00	455.05	462.22		463.05	0.002167	4.83	4.95	290.10	58.56	0.58
Larraun	304.6726	T5	305.00	454.48	459.13		459.54	0.001853	3.21	3.12	152.35	48.82	0.49
Larraun	304.6726	T10	375.00	454.48	459.71		460.15	0.001743	3.39	3.61	181.00	50.14	0.49
Larraun	304.6726	T100	604.00	454.48	461.41		461.95	0.001490	3.82	5.01	269.35	53.72	0.47
Larraun	304.6726	T500	784.00	454.48	462.32		462.98	0.001566	4.27	5.68	319.40	56.19	0.50
Larraun	290.2381	T5	305.00	454.44	459.05		459.51	0.002034	3.43	3.26	144.64	44.31	0.52
Larraun	290.2381	T10	375.00	454.44	459.61		460.12	0.001953	3.64	3.75	170.00	45.28	0.52
Larraun	290.2381	T100	604.00	454.44	461.28		461.92	0.001742	4.17	5.16	247.66	48.00	0.52
Larraun	290.2381	T500	784.00	454.44	462.15		462.94	0.001873	4.69	5.88	289.97	49.29	0.55
Larraun	276.222	T5	305.00	453.93	459.08		459.46	0.001613	3.09	3.77	147.82	39.26	0.46
Larraun	276.222	T10	375.00	453.93	459.64		460.08	0.001628	3.35	4.22	169.98	40.27	0.47
Larraun	276.222	T100	604.00	453.93	461.27		461.89	0.001598	3.98	5.54	238.15	43.03	0.49
Larraun	276.222	T500	784.00	453.93	462.13		462.92	0.001782	4.55	6.15	275.57	44.79	0.52
Larraun	265.6064	T5	305.00	453.64	459.09		459.44	0.001234	2.88	4.01	152.93	38.09	0.41
Larraun	265.6064	T10	375.00	453.64	459.64		460.06	0.001286	3.15	4.46	174.34	39.10	0.42
Larraun	265.6064	T100	604.00	453.64	461.28		461.87	0.001342	3.81	5.72	240.69	42.10	0.45
Larraun	265.6064	T500	784.00	453.64	462.13		462.90	0.001520	4.37	6.38	277.15	43.46	0.49
Larraun	252.573	T5	305.00	453.99	458.36		459.34	0.005777	4.73	3.05	85.43	28.02	0.81
Larraun	252.573	T10	375.00	453.99	458.81		459.95	0.006093	5.13	3.24	98.46	30.36	0.84
Larraun	252.573	T100	604.00	453.99	460.51		461.77	0.004505	5.47	4.38	154.78	35.35	0.75
Larraun	252.573	T500	784.00	453.99	461.08		462.77	0.005340	6.36	4.76	175.16	36.76	0.83
Larraun	240.252	T5	305.00	454.17	458.43		459.23	0.003368	4.14	3.22	93.62	29.11	0.66
Larraun	240.252	T10	375.00	454.17	458.88		459.84	0.003536	4.55	3.44	106.86	31.08	0.69
Larraun	240.252	T100	604.00	454.17	460.50		461.71	0.003009	5.17	4.33	163.79	37.85	0.67
Larraun	240.252	T500	784.00	454.17	461.05		462.70	0.003698	6.08	4.70	185.07	39.39	0.76
Larraun	226.14	T5	305.00	454.00	458.32		459.18	0.003831	4.55	3.09	103.22	33.36	0.71
Larraun	226.14	T10	375.00	454.00	458.74		459.78	0.004098	5.03	3.32	117.74	35.44	0.75
Larraun	226.14	T100	604.00	454.00	460.44		461.66	0.003334	5.60	4.31	184.65	42.83	0.71
Larraun	226.14	T500	784.00	454.00	461.00		462.64	0.004066	6.54	4.69	209.20	44.63	0.80
Larraun	214.1848	T5	305.00	453.85	458.35		459.10	0.003388	4.45	3.44	114.54	33.31	0.68
Larraun	214.1848	T10	375.00	453.85	458.78		459.69	0.003667	4.93	3.58	129.26	36.14	0.72
Larraun	214.1848	T100	604.00	453.85	460.45	458.78	461.60	0.003262	5.66	4.46	198.71	44.55	0.71
Larraun	214.1848	T500	784.00	453.85	461.02	460.08	462.56	0.003986	6.62	4.86	224.58	46.25	0.80
Larraun	198.3614	T5	305.00	454.24	457.96	457.47	458.99	0.007884	5.57	2.99	94.26	31.49	0.98
Larraun	198.3614	T10	375.00	454.24	458.17	457.88	459.56	0.009650	6.43	3.15	101.15	32.08	1.10
Larraun	198.3614	T100	604.00	454.24	458.91	458.91	461.38	0.013364	8.60	3.62	125.59	34.69	1.34
Larraun	198.3614	T500	784.00	454.24	460.29	460.29	462.42	0.008254	8.16	3.95	192.33	48.71	1.10
Larraun	188.4099	T5	305.00	453.95	458.03		458.88	0.004769	4.95	3.26	108.90	33.37	0.79
Larraun	188.4099	T10	375.00	453.95	458.29		459.41	0.005815	5.70	3.43	117.57	34.31	0.88
Larraun	188.4099	T100	604.00	453.95	458.71	458.52	461.14	0.011072	8.39	3.19	133.00	41.76	1.24
Larraun	188.4099	T500	784.00	453.95	459.62	460.09	462.28	0.009863	8.91	3.68	174.49	47.37	1.21
Larraun	176.0865	T5	305.00	454.05	457.94	457.28	458.82	0.004979	4.96	3.02	107.17	35.47	0.81
Larraun	176.0865	T10	375.00	454.05	458.17	457.70	459.33	0.006088	5.71	3.18	115.66	36.32	0.90
Larraun	176.0865	T100	604.00	454.05	459.07	458.80	460.97	0.007869	7.40	3.19	159.08	49.89	1.06
Larraun	176.0865	T500	784.00	454.05	459.25	459.93	462.13	0.011518	9.17	3.33	167.96	50.40	1.29
Larraun	166.4144	T5	305.00	453.92	458.09	456.98	458.70	0.003230	4.16	3.29	127.96	38.94	0.66
Larraun	166.4144	T10	375.00	453.92	458.39	457.38	459.17	0.003795	4.73	3.51	139.85	39.86	0.72
Larraun	166.4144	T100	604.00	453.92	459.48	458.45	460.71	0.004533	6.00	3.70	196.35	53.03	0.82
Larraun	166.4144	T500	784.00	453.92	460.15	458.85	461.65	0.004904	6.73	4.17	232.56	55.79	0.87
Larraun	154.6094	T5	305.00	454.10	458.02	457.01	458.66	0.003594	4.17	3.08	123.56	40.14	0.68
Larraun	154.6094	T10	375.00	454.10	458.32	457.42	459.12	0.004178	4.73	3.29	135.50	41.15	0.75
Larraun	154.6094	T100	604.00	454.10	459.21	458.51	460.63	0.005681	6.29	3.36	178.12	53.02	0.90
Larraun	154.6094	T500	784.00	454.10	460.03	459.64	461.59	0.005293	6.71	4.00	222.43	55.58	0.89
Larraun	143.2528	T5	305.00	453.83	458.10		458.57	0.002626	3.64	3.18	143.11	45.07	0.59
Larraun	143.2528	T10	375.00	453.83	458.42		459.02	0.002987	4.09	3.43	157.92	46.00	0.63
Larraun	143.2528	T100	604.00	453.83	459.49		460.44	0.003588	5.21	3.87	212.24	54.78	0.72
Larraun	143.2528	T500	784.00	453.83	460.28		461.41	0.003608	5.73	4.39	257.33	58.59	0.74
Larraun	134.4118	T5	305.00	453.75	458.07		458.55	0.002648	3.60	3.03	142.89	47.20	0.59
Larraun	134.4118	T10	375.00	453.75	458.40		458.99	0.002986	4.04	3.28	158.46	48.37	0.63
Larraun	134.4118	T100	604.00	453.75	459.48		460.40	0.003471	5.08	3.73	216.47	58.02	0.71
Larraun	134.4118	T500	784.00	453.75	460.30		461.35	0.003369	5.51	4.34	265.31	61.10	0.71
Larraun	122.1287	T5	305.00	454.11	458.04		458.52	0.002733	3.56	3.00	139.61	46.55	0.59
Larraun	122.1287	T10	375.00	454.11	458.36		458.95	0.003078	3.99	3.23	154.74	47.84	0.64
Larraun	122.1287	T100	604.00	454.11	459.44		460.35	0.003504	4.99	3.73	211.30	56.64	0.71
Larraun	122.1287	T500	784.00	454.11	460.27		461.31	0.003358	5.40	4.40	258.94	58.84	0.71
Larraun	110.8731	T5	305.00	454.02	458.05		458.47	0.002405	3.32	3.15	144.42	45.79	0.55
Larraun	110.8731	T10	375.00	454.02	458.37		458.90	0.002735	3.74	3.37	159.33	47.25	0.60
Larraun	110.8731	T100	604.00	454.02	459.45		460.30	0.003189	4.74	3.80	214.88	56.60	0.67
Larraun	110.8731	T500	784.00	454.02	460.25		461.26	0.003179	5.22	4.24	262.53	61.98	0.69
Larraun	99.77825	T5	305.00	454.08	458.04		458.44	0.002074	3.14	3.16	147.15	46.63	0.52
Larraun	99.77825	T10	375.00	454.08	458.37		458.87	0.002348	3.54	3.41	162.49	47.65	0.56

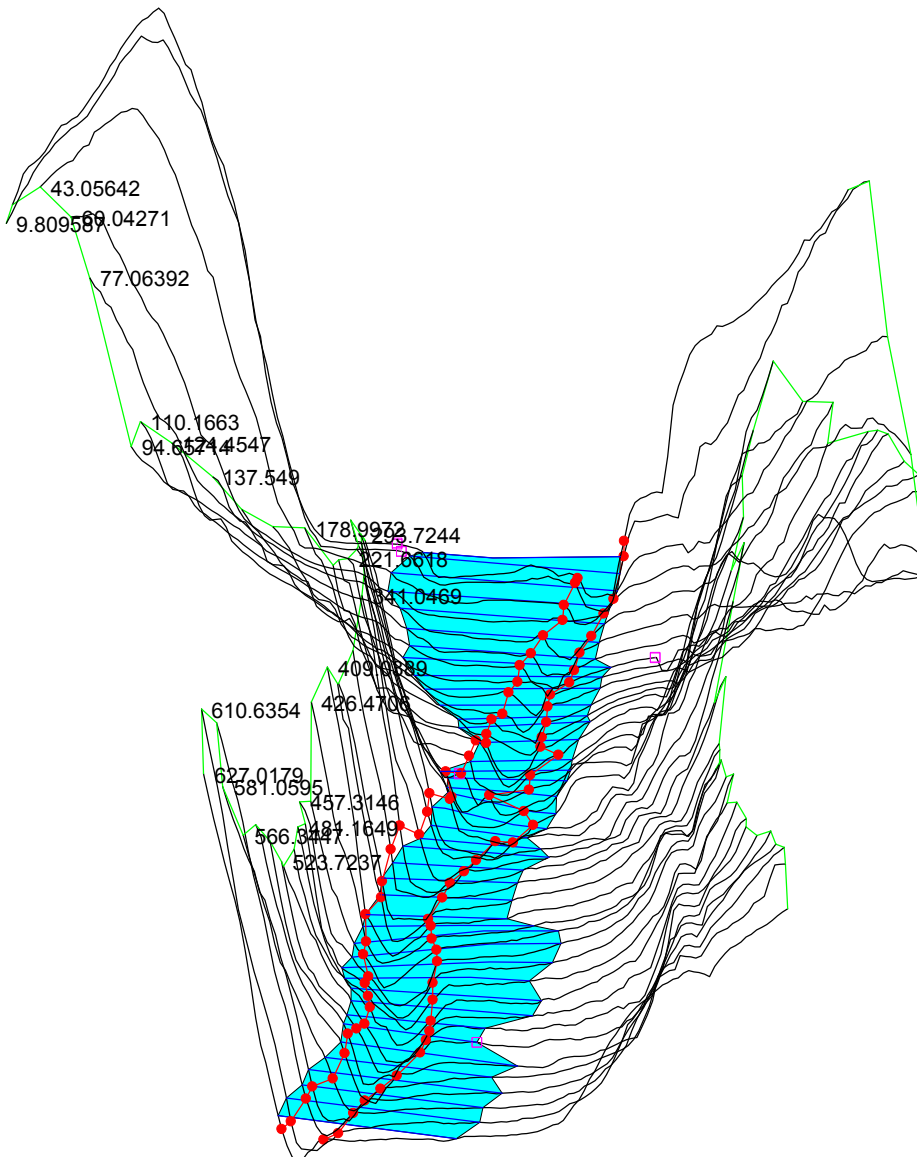
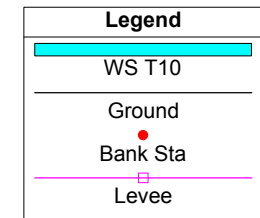
HEC-RAS Plan: Plan 01 River: Larraun Reach: Larraun (Continued)

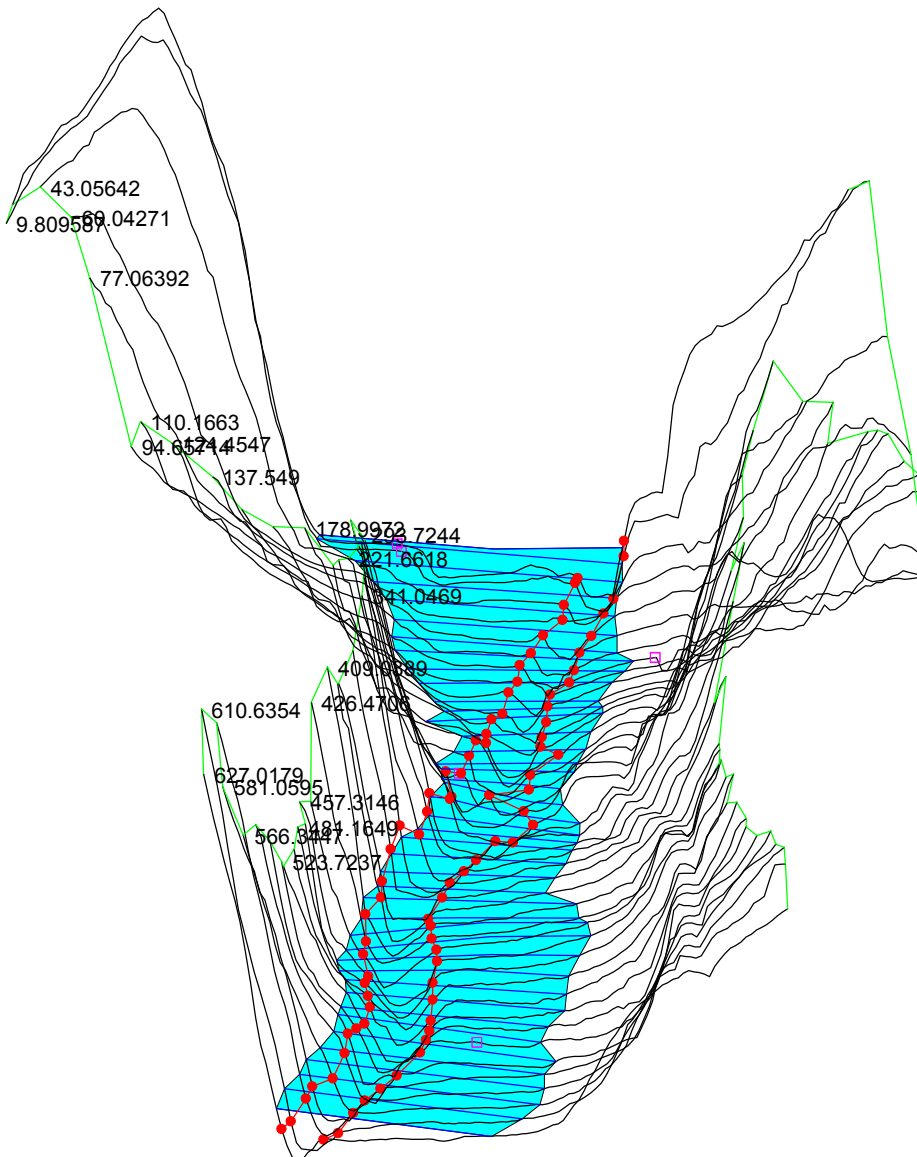
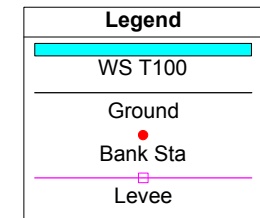
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Hydr Depth	Flow Area	Top Width	Froude # Chl
			(m ³ /s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m)	(m ²)	(m)	
Larraun	99.77825	T100	604.00	454.08	459.48		460.24	0.002662	4.42	4.10	218.62	53.34	0.62
Larraun	99.77825	T500	784.00	454.08	460.24		461.22	0.002861	5.02	4.17	262.81	63.07	0.66
Larraun	87.08531	T5	305.00	454.06	457.93		458.40	0.002187	3.25	2.95	129.25	43.82	0.53
Larraun	87.08531	T10	375.00	454.06	458.23		458.82	0.002524	3.67	3.19	142.36	44.62	0.58
Larraun	87.08531	T100	604.00	454.06	459.30		460.19	0.002864	4.56	3.97	191.73	48.24	0.64
Larraun	87.08531	T500	784.00	454.06	460.09		461.17	0.002908	5.05	4.08	231.87	56.80	0.66
Larraun	75.43925	T5	305.00	453.97	457.91		458.38	0.002079	3.16	3.20	121.56	37.93	0.52
Larraun	75.43925	T10	375.00	453.97	458.20		458.79	0.002450	3.60	3.43	132.42	38.59	0.57
Larraun	75.43925	T100	604.00	453.97	459.19		460.15	0.002999	4.60	4.19	171.63	40.95	0.65
Larraun	75.43925	T500	784.00	453.97	459.92		461.13	0.003151	5.16	4.70	202.67	43.11	0.69
Larraun	64.43741	T5	305.00	454.10	457.84		458.35	0.002534	3.27	2.98	113.34	38.08	0.56
Larraun	64.43741	T10	375.00	454.10	458.11		458.76	0.002967	3.72	3.19	123.62	38.70	0.62
Larraun	64.43741	T100	604.00	454.10	459.09		460.11	0.003461	4.69	3.98	162.47	40.84	0.69
Larraun	64.43741	T500	784.00	454.10	459.81		461.08	0.003580	5.25	4.41	193.02	43.76	0.72
Larraun	53.30852	T5	305.00	454.44	457.70		458.30	0.003356	3.57	2.77	103.30	37.35	0.64
Larraun	53.30852	T10	375.00	454.44	457.91		458.70	0.004078	4.10	2.94	111.15	37.82	0.71
Larraun	53.30852	T100	604.00	454.44	458.76		460.03	0.004890	5.22	3.62	144.30	39.87	0.81
Larraun	53.30852	T500	784.00	454.44	459.48	458.86	461.01	0.004820	5.75	4.16	173.44	41.64	0.83
Larraun	41.76159	T5	305.00	454.17	457.76		458.23	0.002633	3.25	2.75	125.56	45.60	0.57
Larraun	41.76159	T10	375.00	454.17	457.99		458.61	0.003133	3.71	2.92	136.53	46.76	0.63
Larraun	41.76159	T100	604.00	454.17	458.95		459.88	0.003534	4.62	3.58	163.64	51.29	0.70
Larraun	41.76159	T500	784.00	454.17	459.75		460.83	0.003353	5.02	4.15	225.60	54.30	0.70
Larraun	32.0429	T5	305.00	454.67	457.29	457.29	458.14	0.012319	4.78	1.66	99.22	59.95	1.12
Larraun	32.0429	T10	375.00	454.67	457.72	457.54	458.53	0.009015	4.70	2.04	125.49	61.43	0.99
Larraun	32.0429	T100	604.00	454.67	459.00		459.80	0.005038	4.72	3.17	206.54	65.20	0.80
Larraun	32.0429	T500	784.00	454.67	459.85		460.73	0.004154	4.95	3.71	264.62	71.27	0.75
Larraun	21.77181	T5	305.00	454.89	457.41	456.75	457.91	0.006051	3.76	1.93	135.44	70.16	0.81
Larraun	21.77181	T10	375.00	454.89	457.88		458.37	0.004632	3.75	2.36	168.84	71.56	0.73
Larraun	21.77181	T100	604.00	454.89	459.14		459.68	0.003143	3.99	3.45	261.54	75.87	0.64
Larraun	21.77181	T500	784.00	454.89	460.02		460.60	0.002638	4.18	4.15	329.80	79.49	0.61
Larraun	7.087183	T5	305.00	453.53	457.59	455.93	457.79	0.001121	2.35	2.89	226.40	78.34	0.38
Larraun	7.087183	T10	375.00	453.53	458.04	456.21	458.26	0.001120	2.53	3.26	261.92	80.44	0.39
Larraun	7.087183	T100	604.00	453.53	459.28	456.92	459.59	0.001122	3.00	4.27	365.13	85.42	0.41
Larraun	7.087183	T500	784.00	453.53	460.15	457.45	460.52	0.001121	3.30	4.72	442.42	93.75	0.42

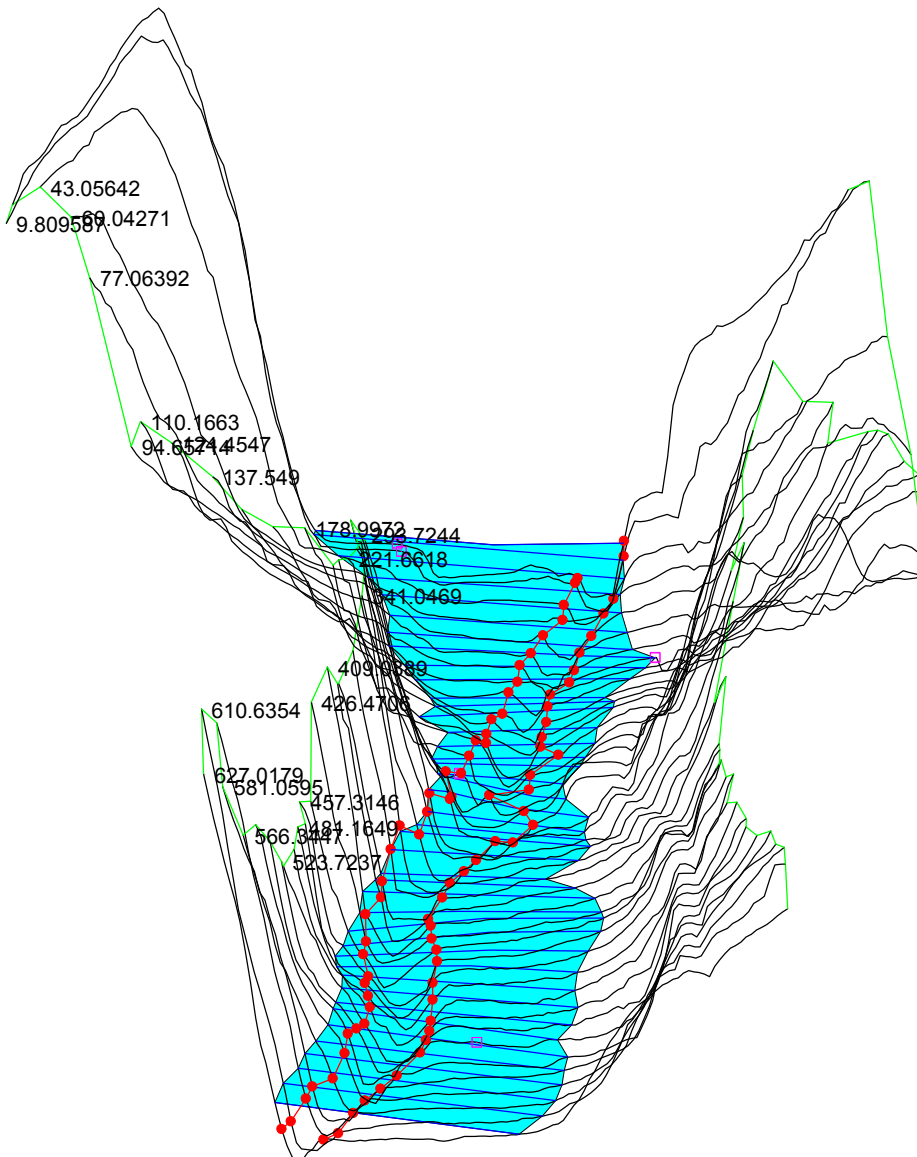
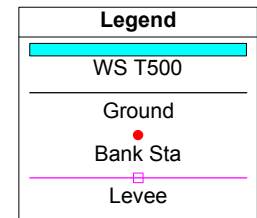
8.1.2. Vista 3D del tramo (Q₅, Q₁₀, Q₁₀₀ y Q₅₀₀)

NUEVA PASARELA PEATONAL SOBRE EL RÍO BASABURUA

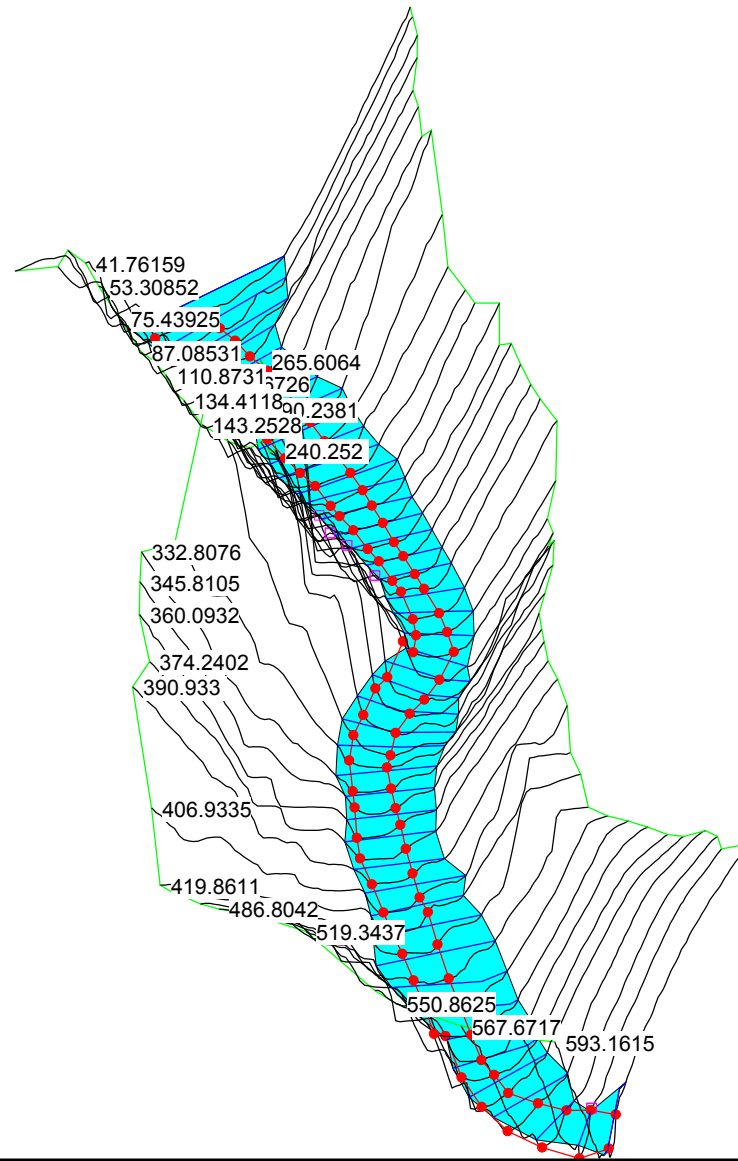
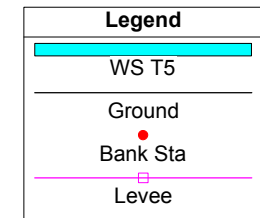


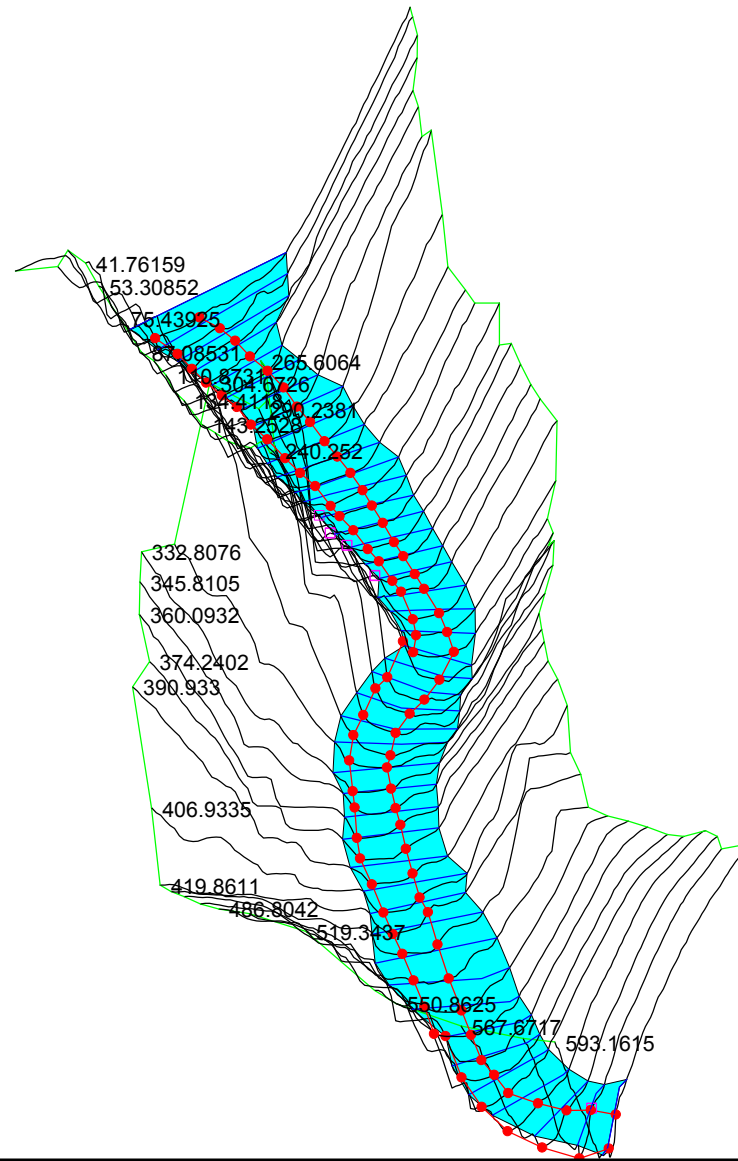
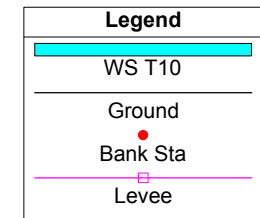


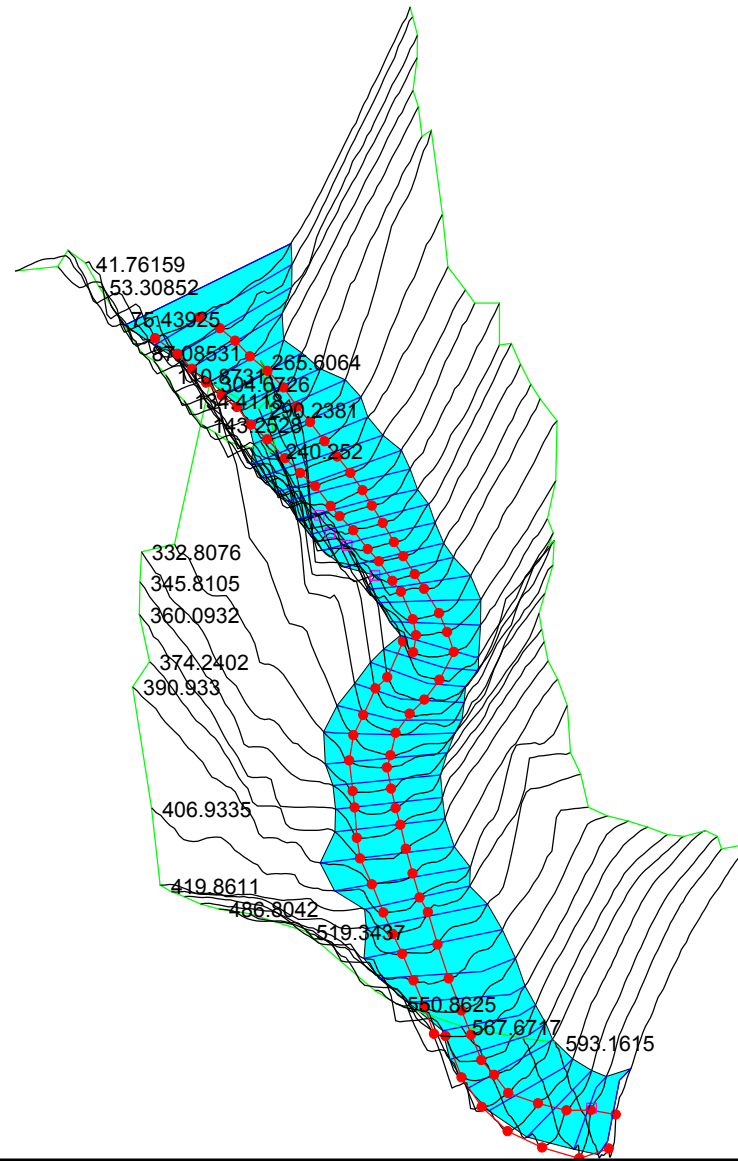
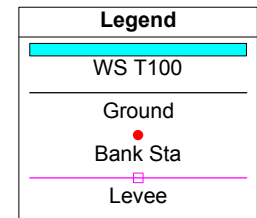


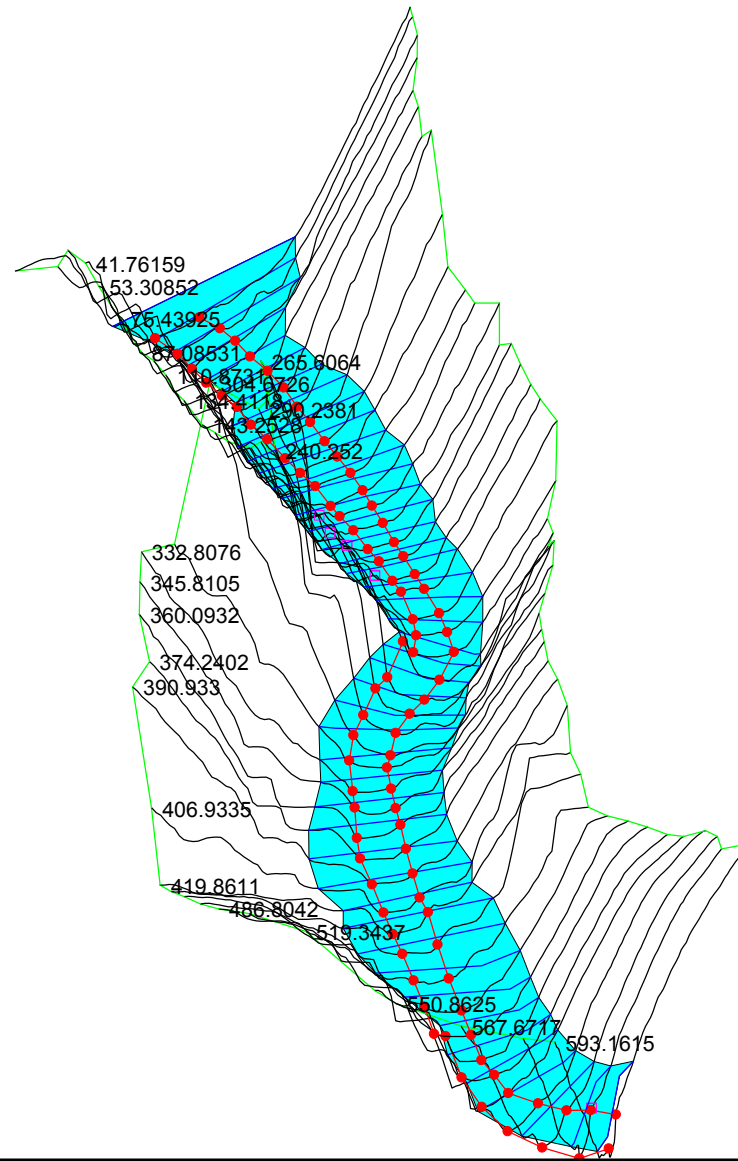
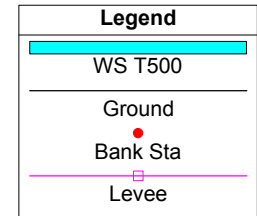


NUEVA PASARELA PEATONAL SOBRE EL RÍO LARRAUN



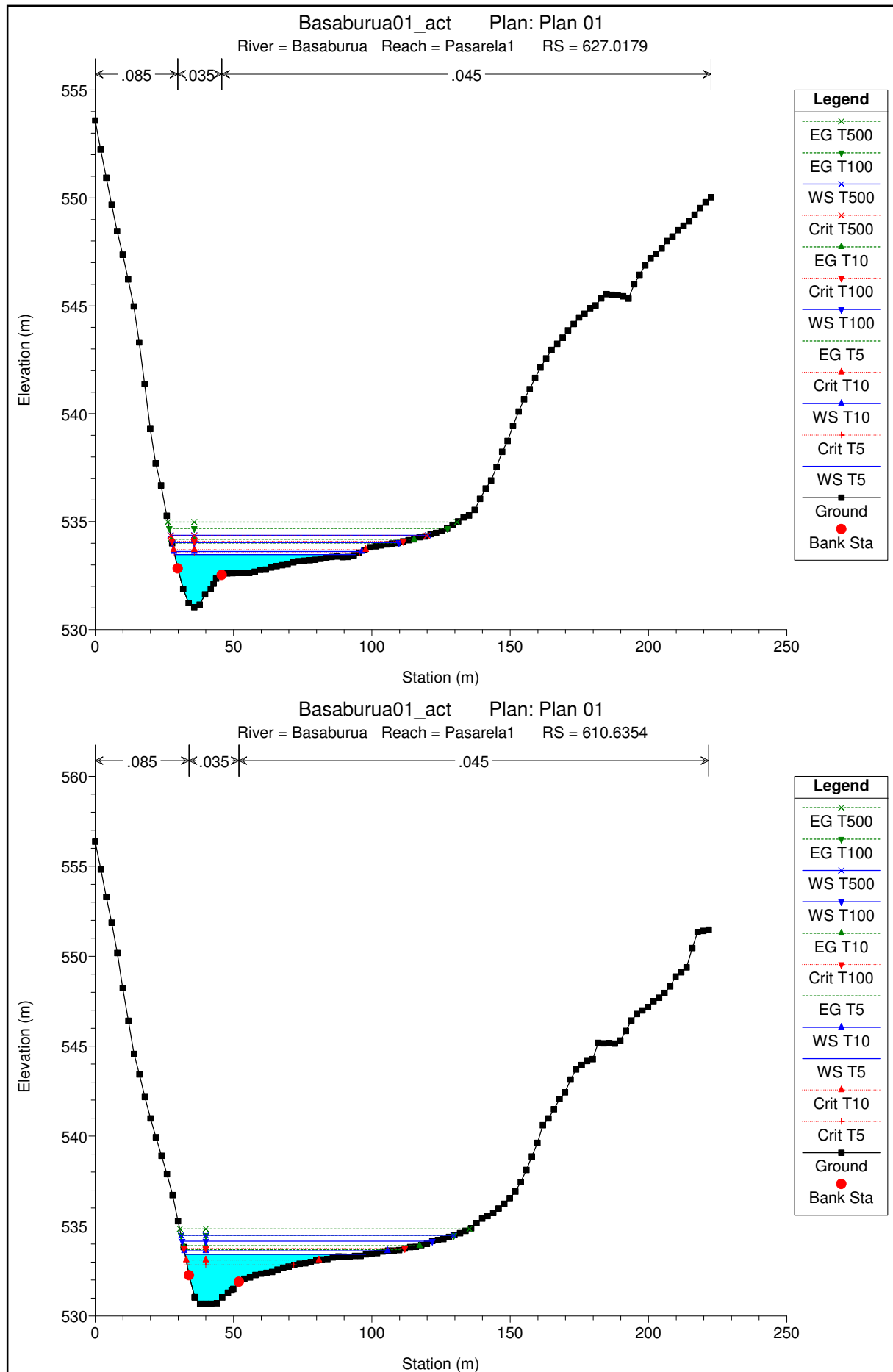


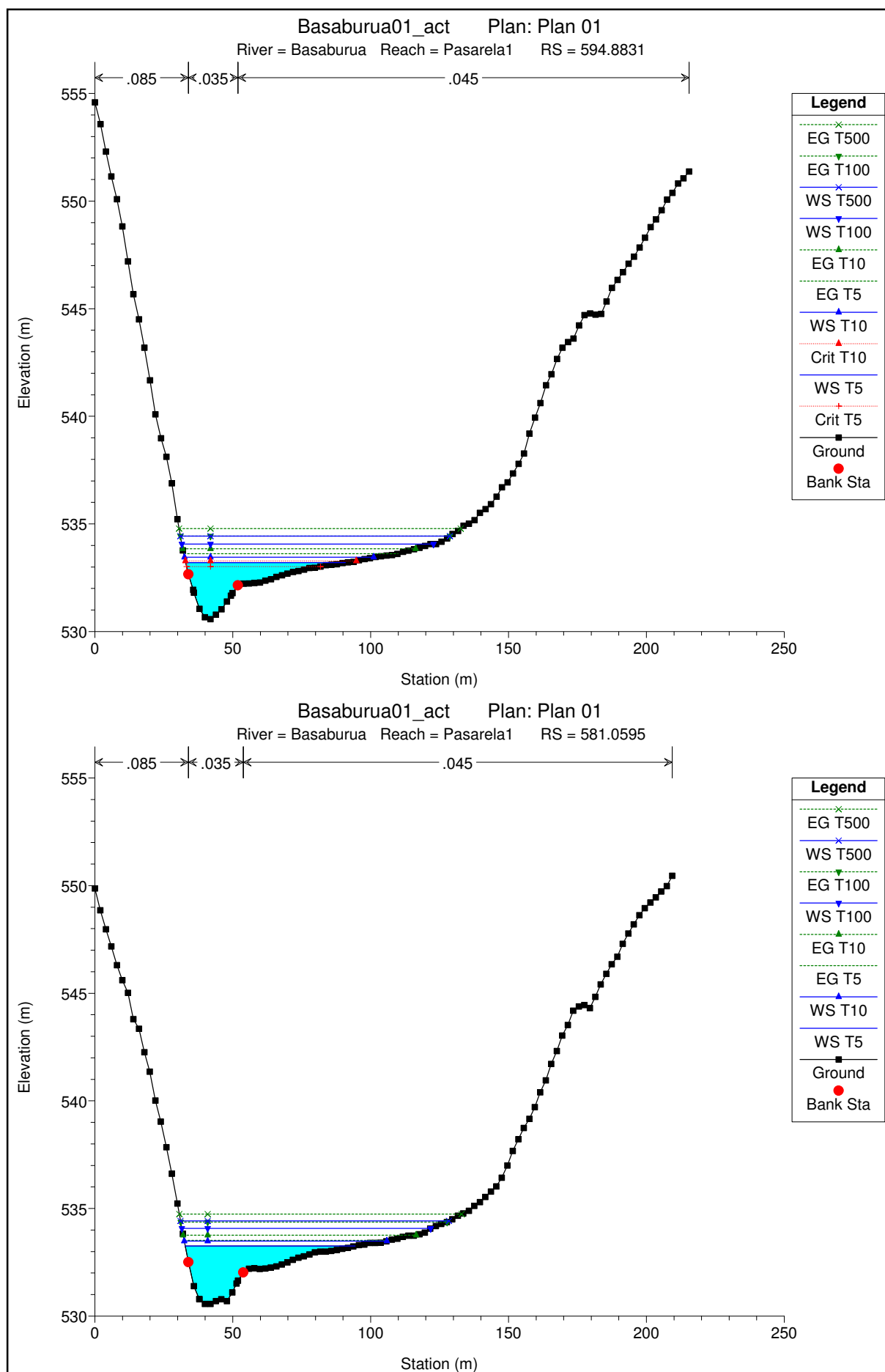


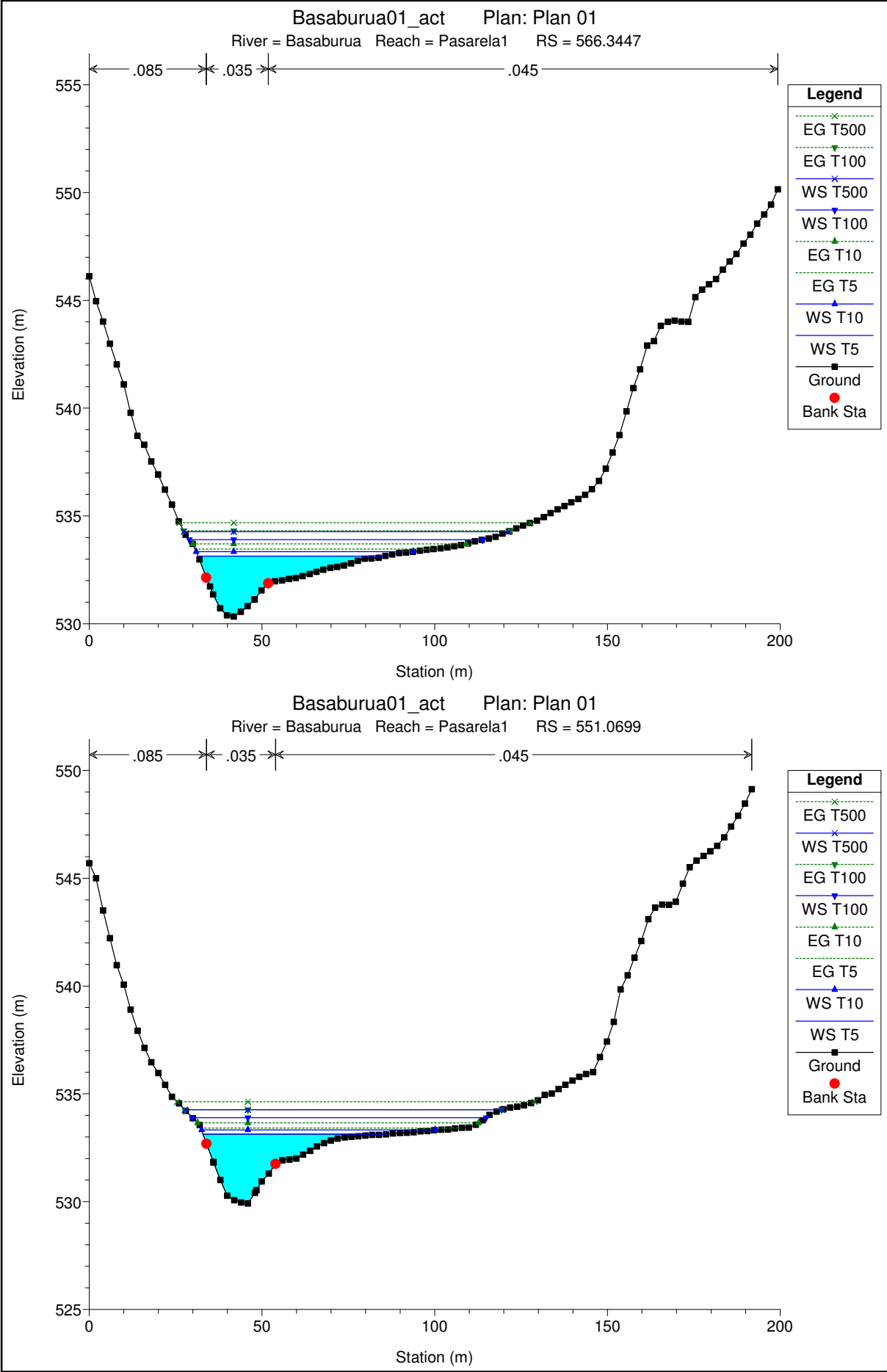


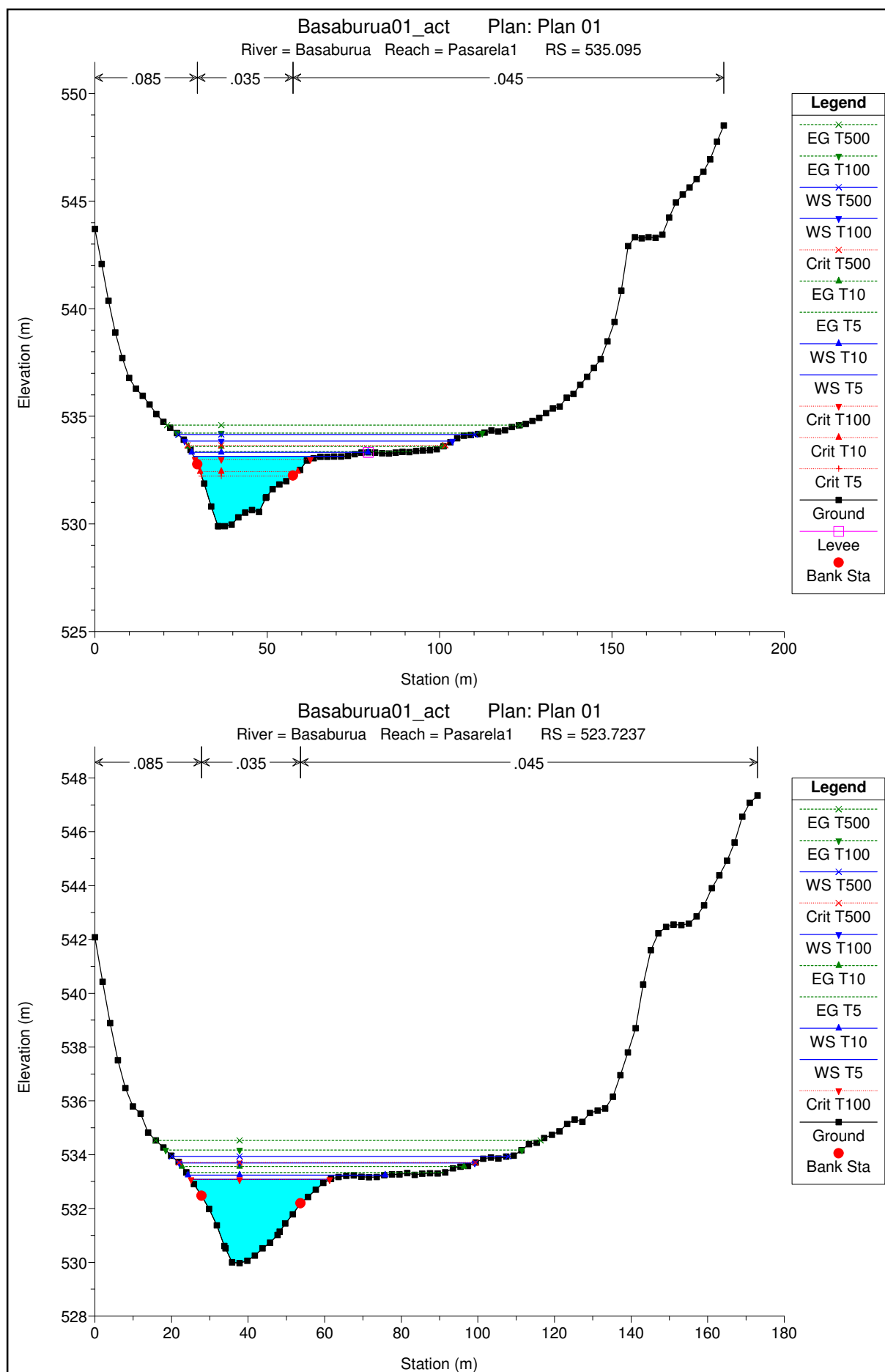
8.1.3. Perfiles transversales

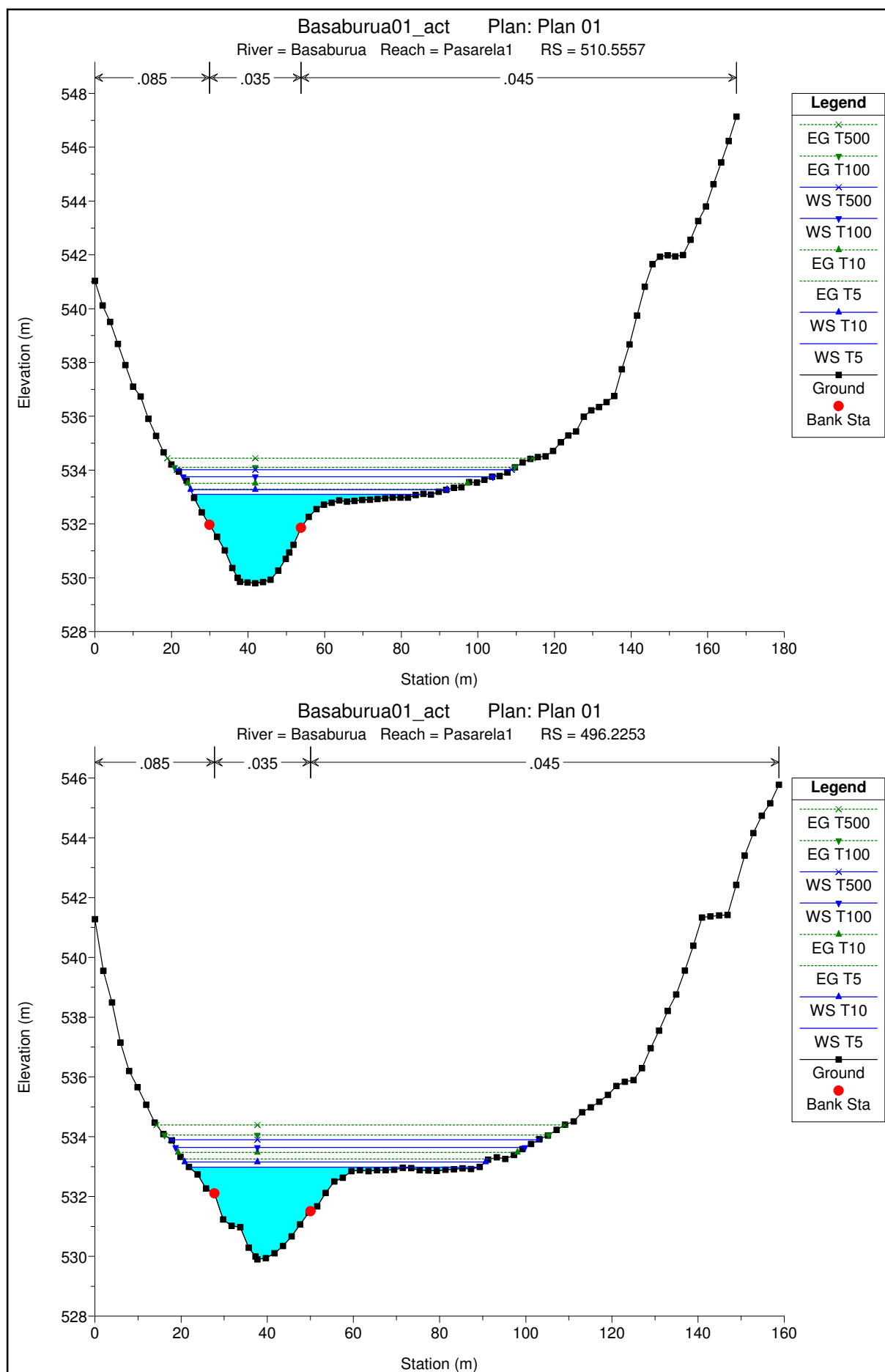
NUEVA PASARELA PEATONAL SOBRE EL RÍO BASABURUA

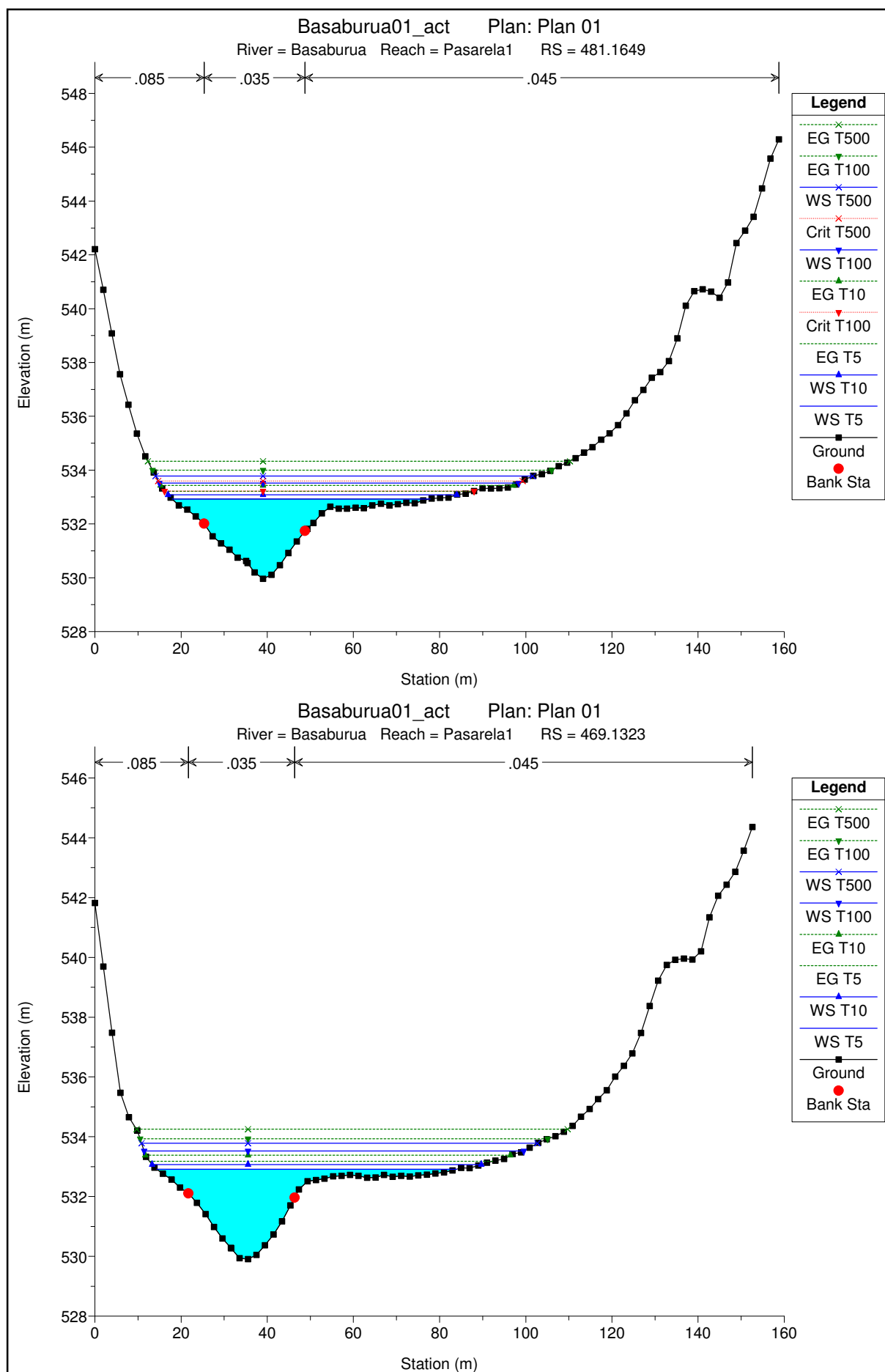


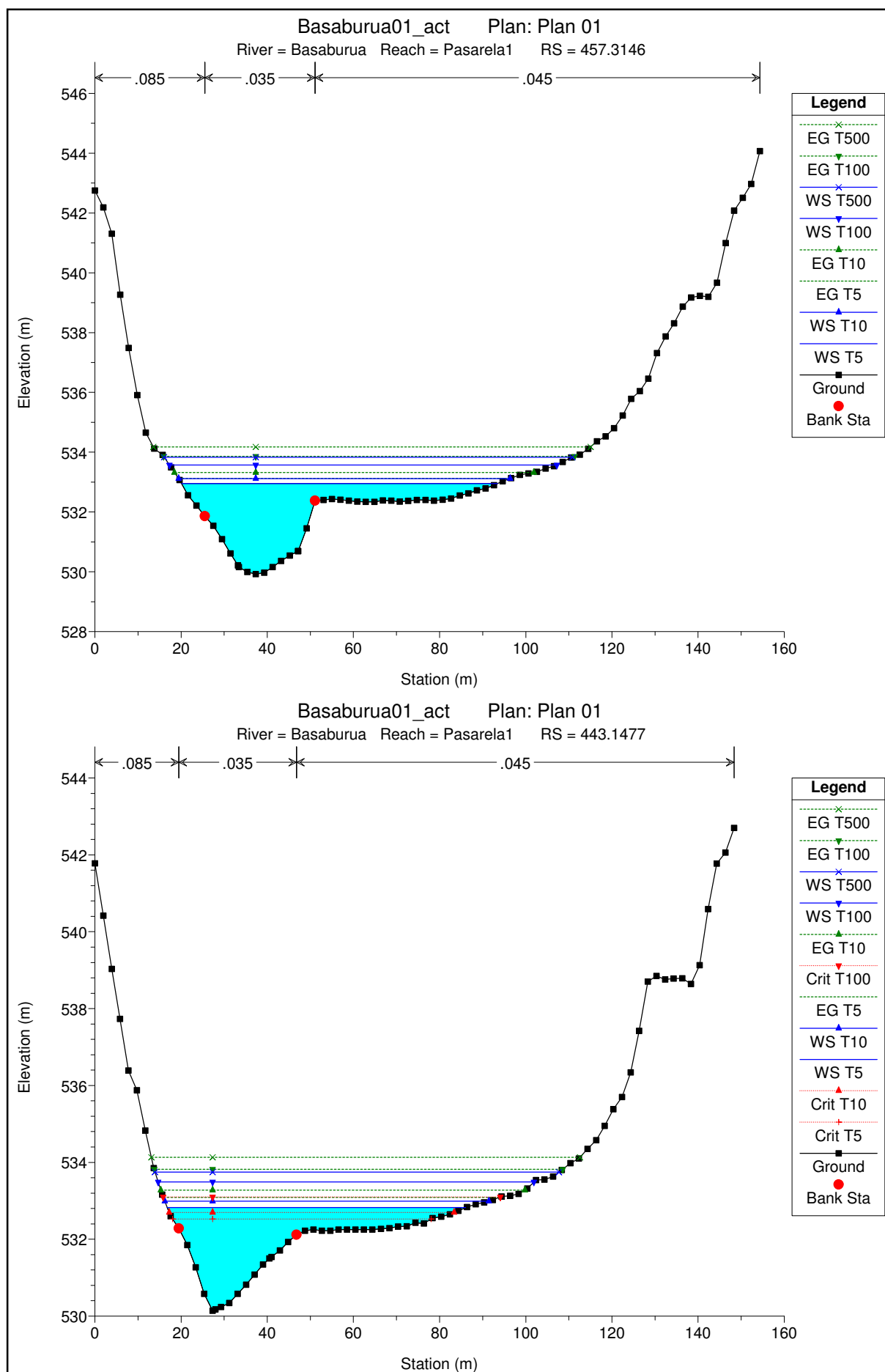


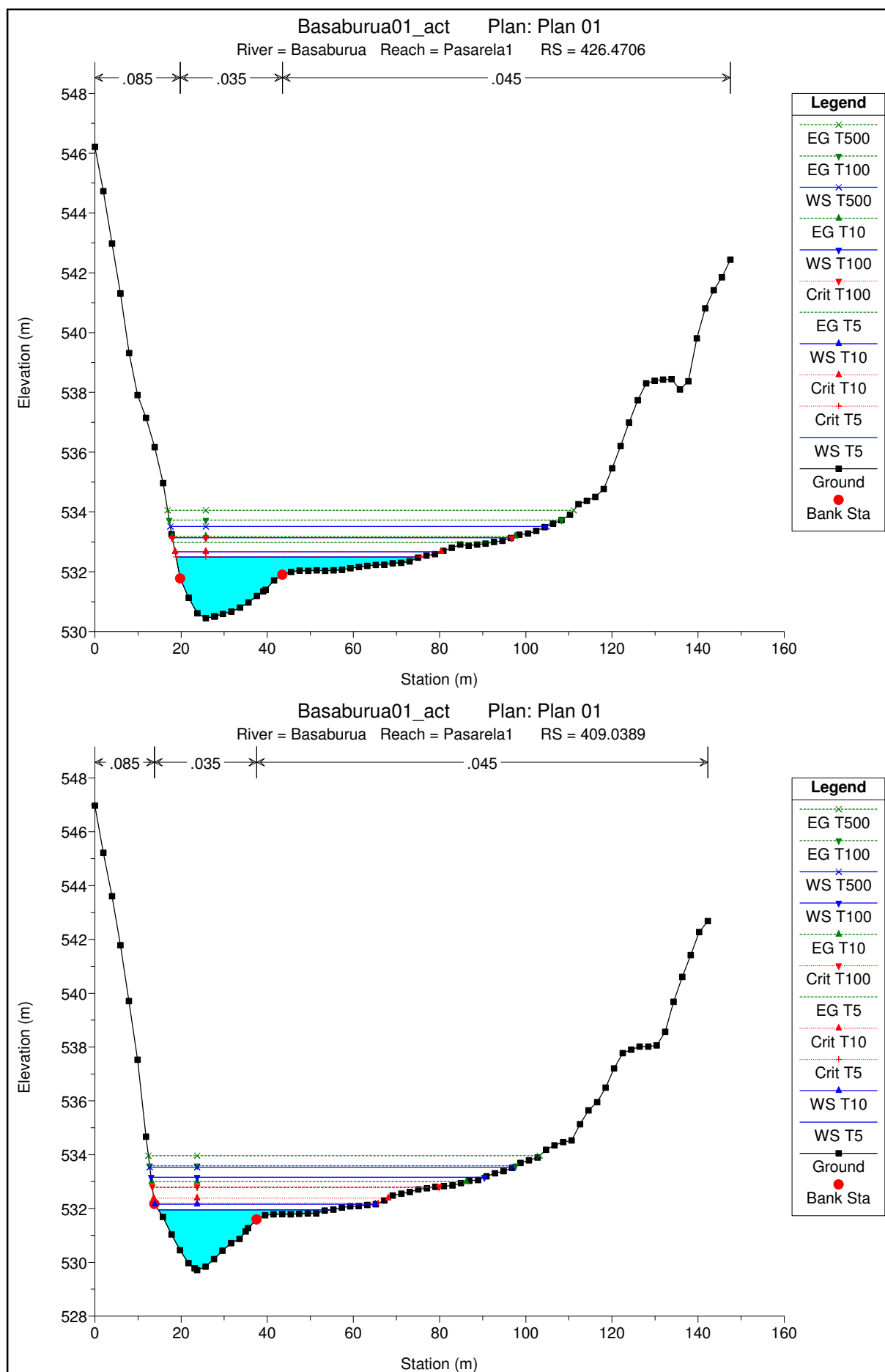


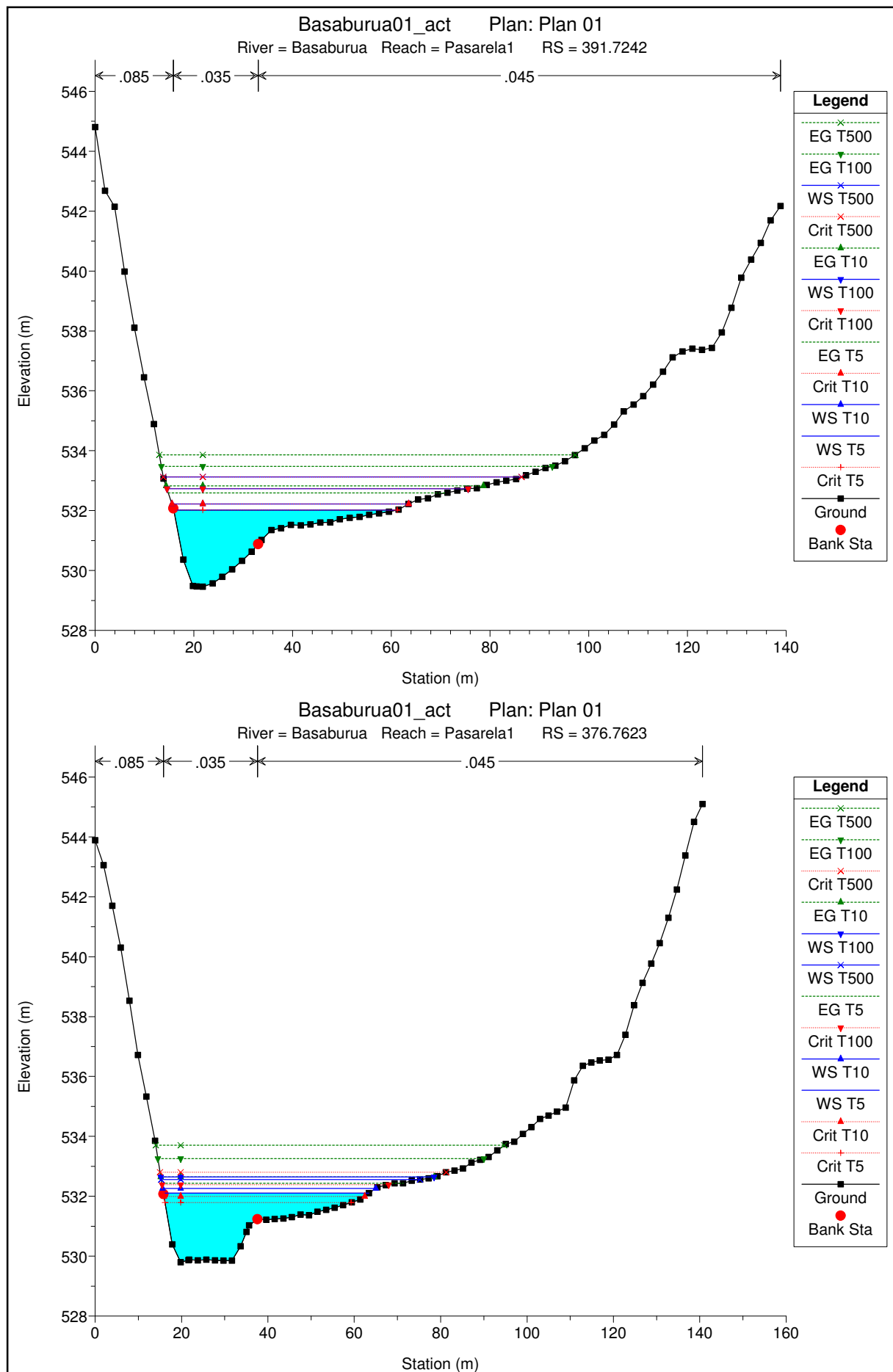


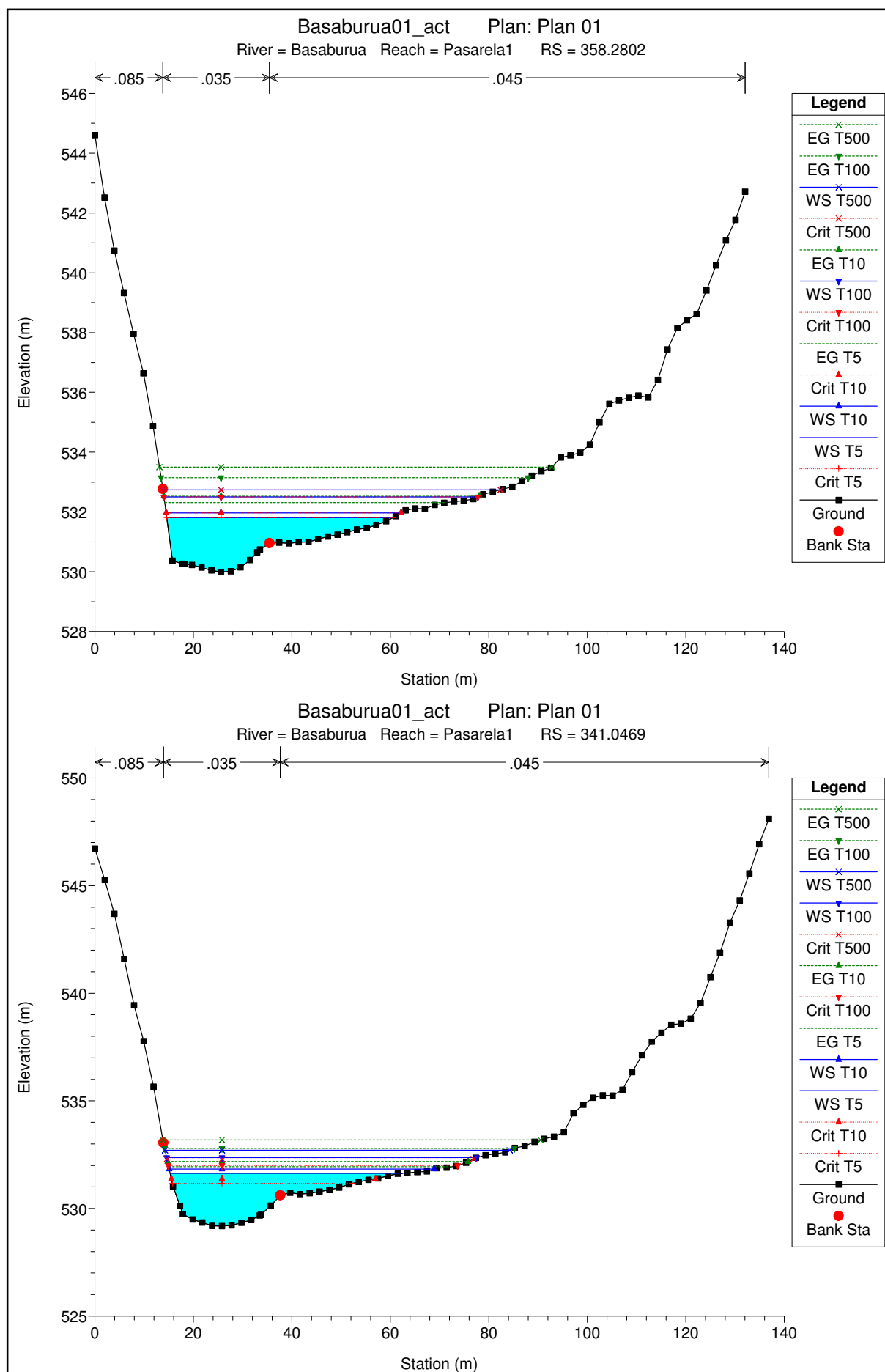


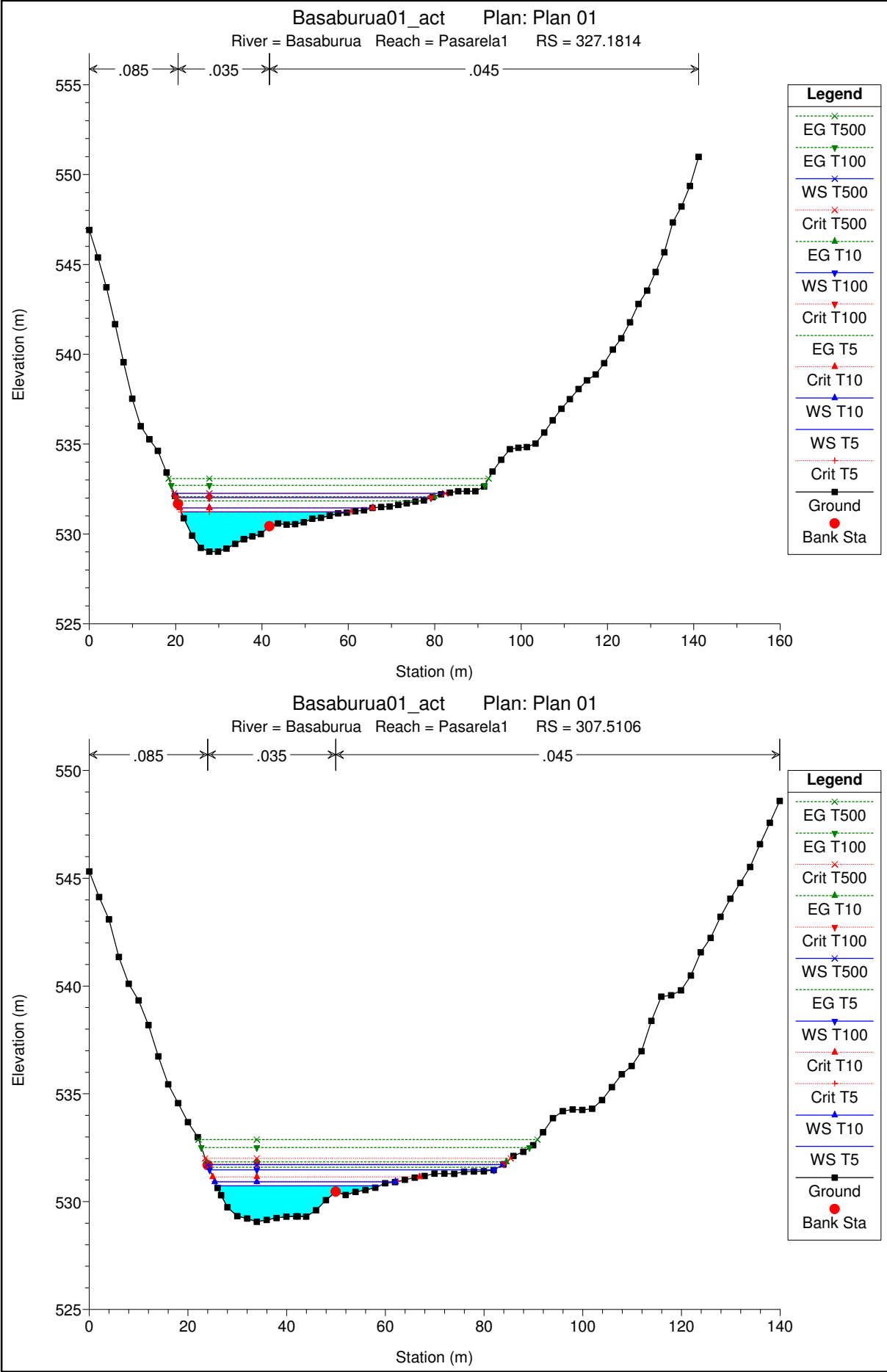


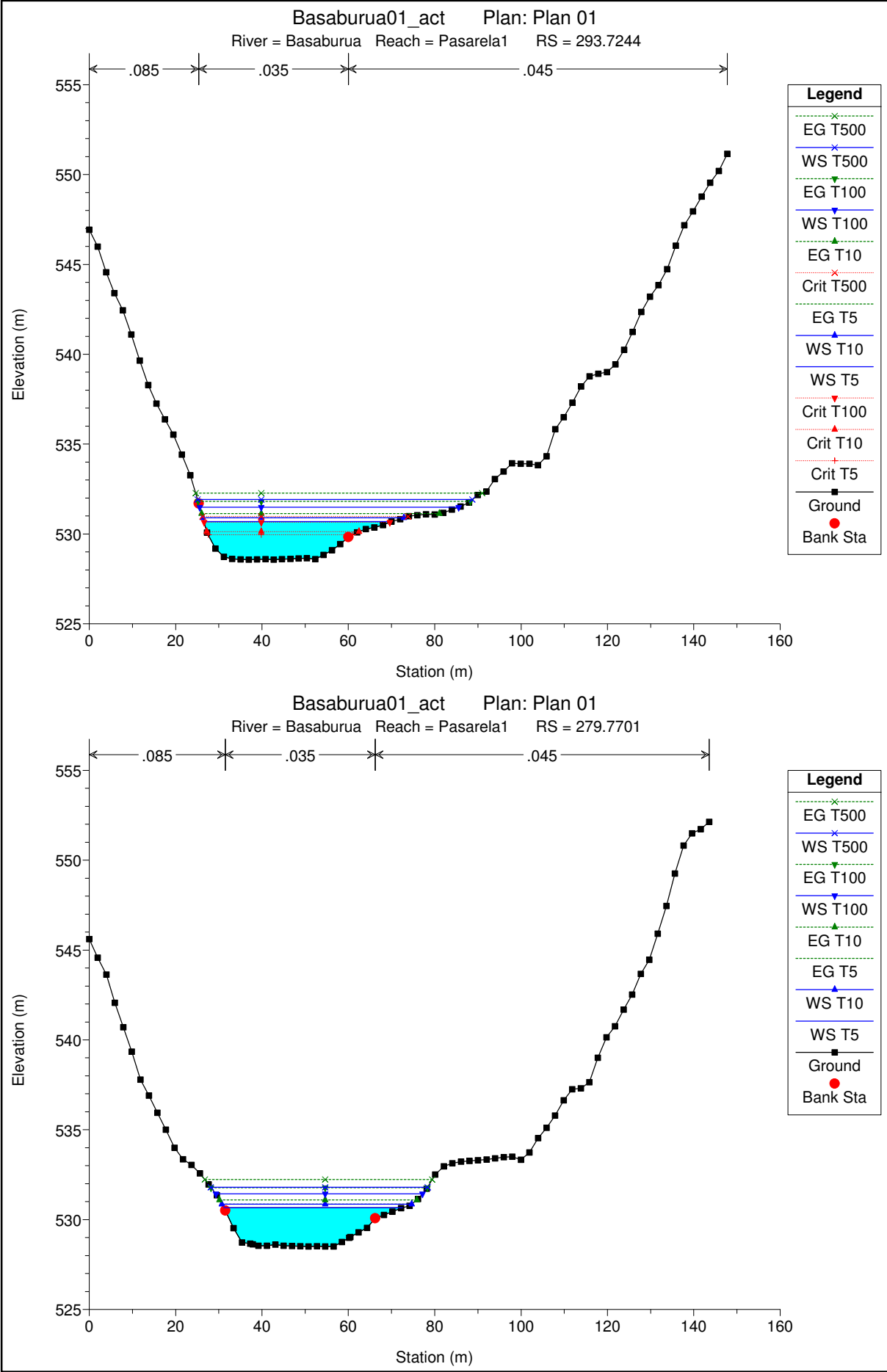


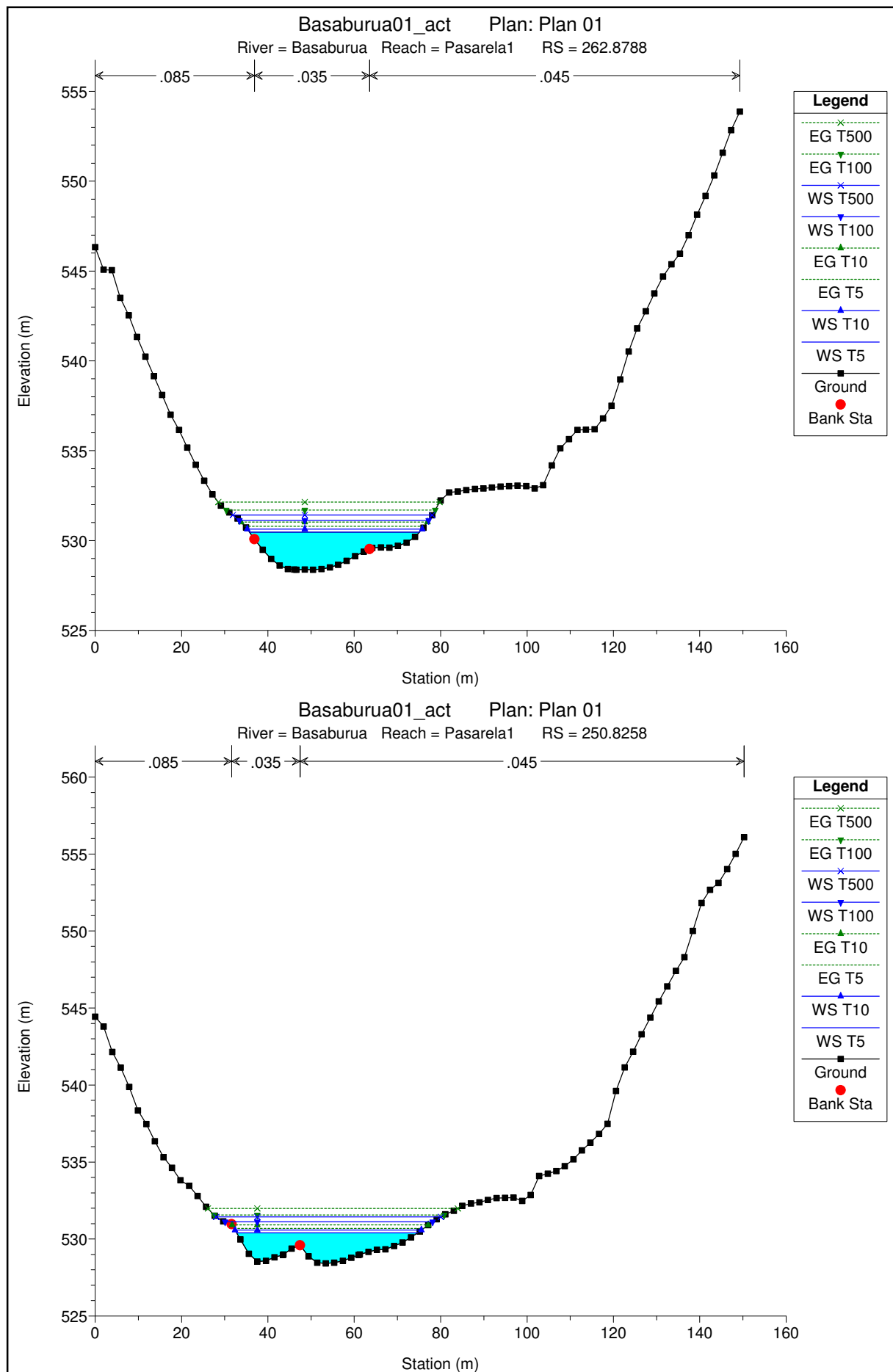


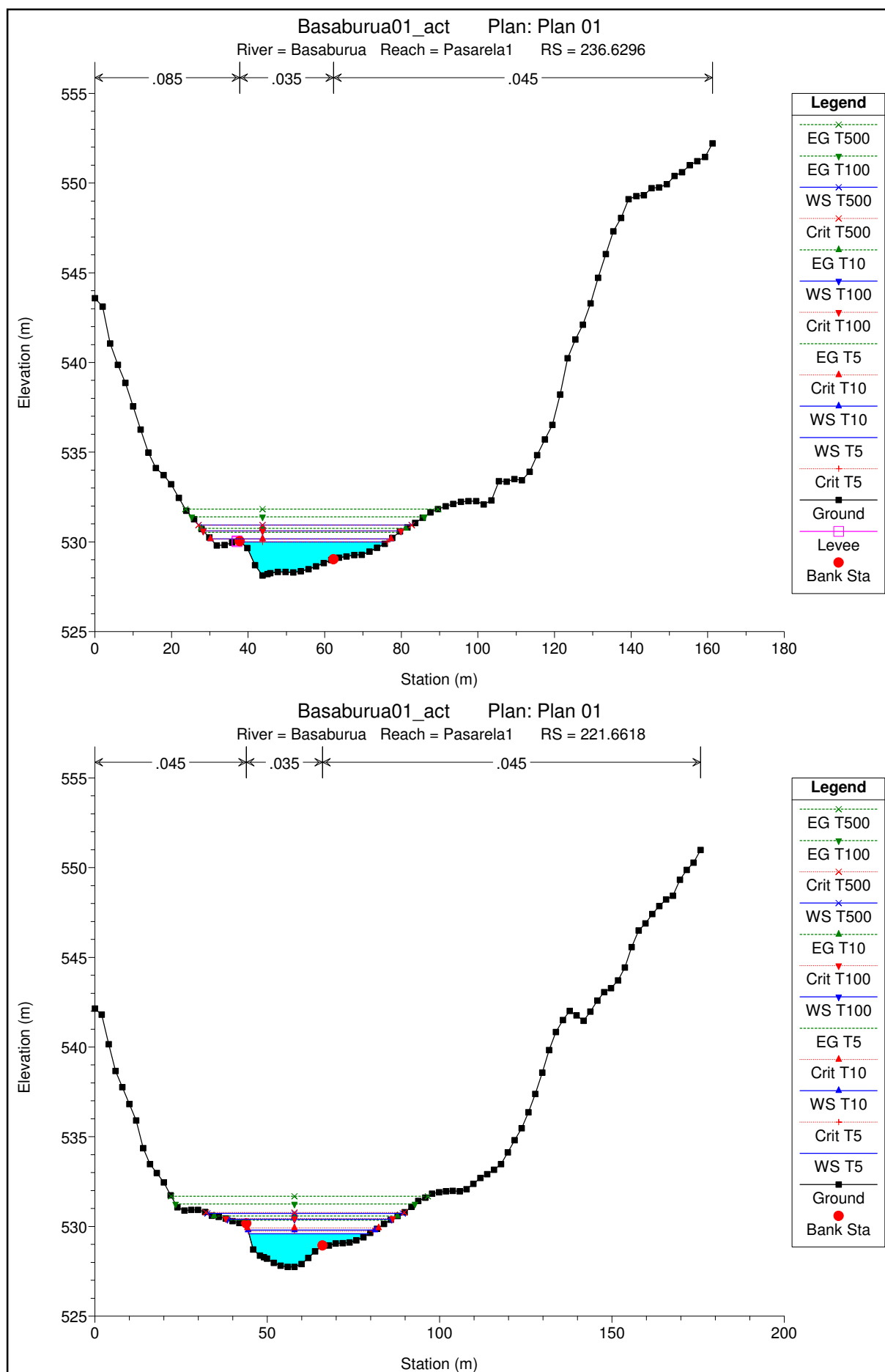


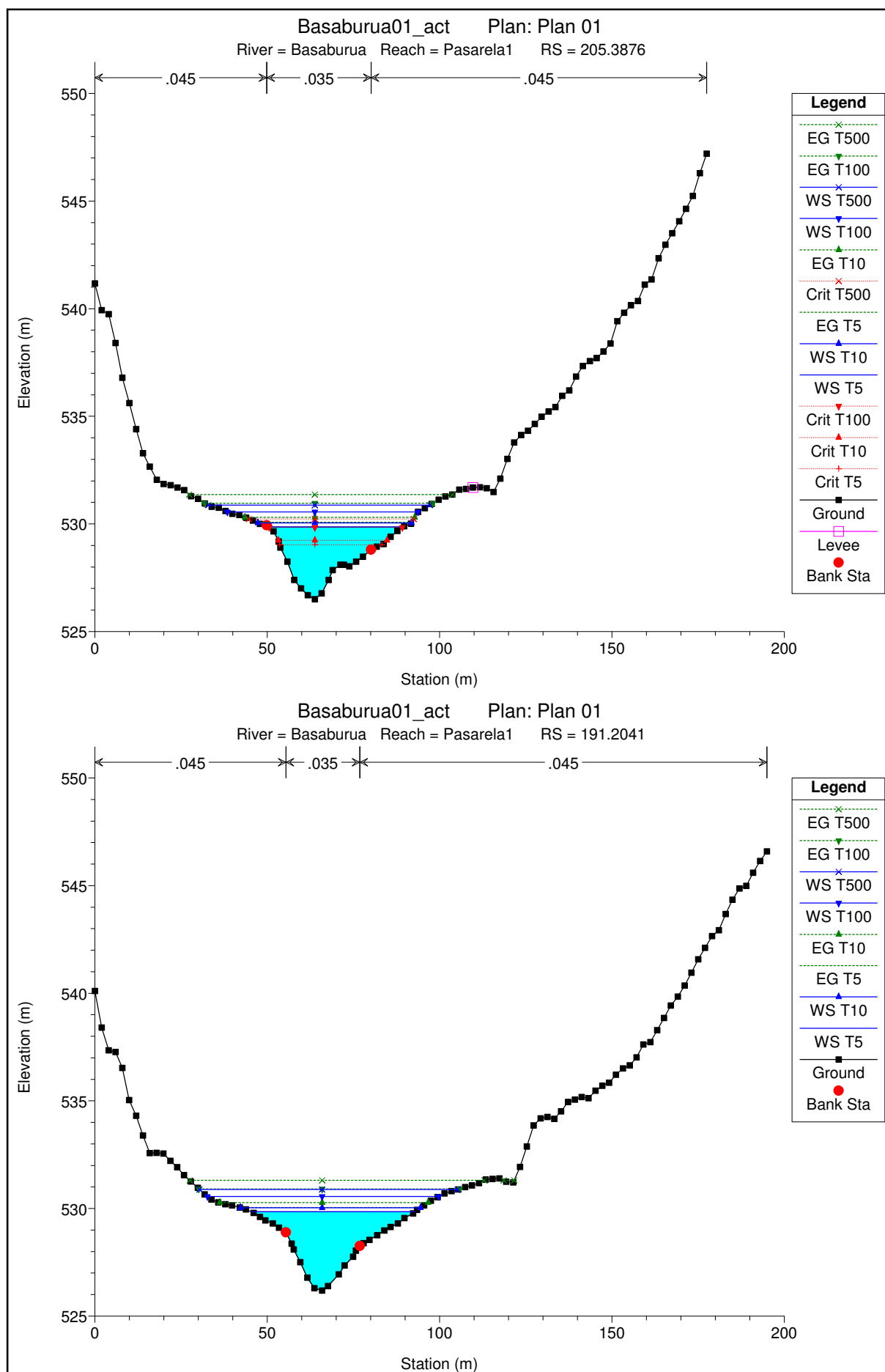


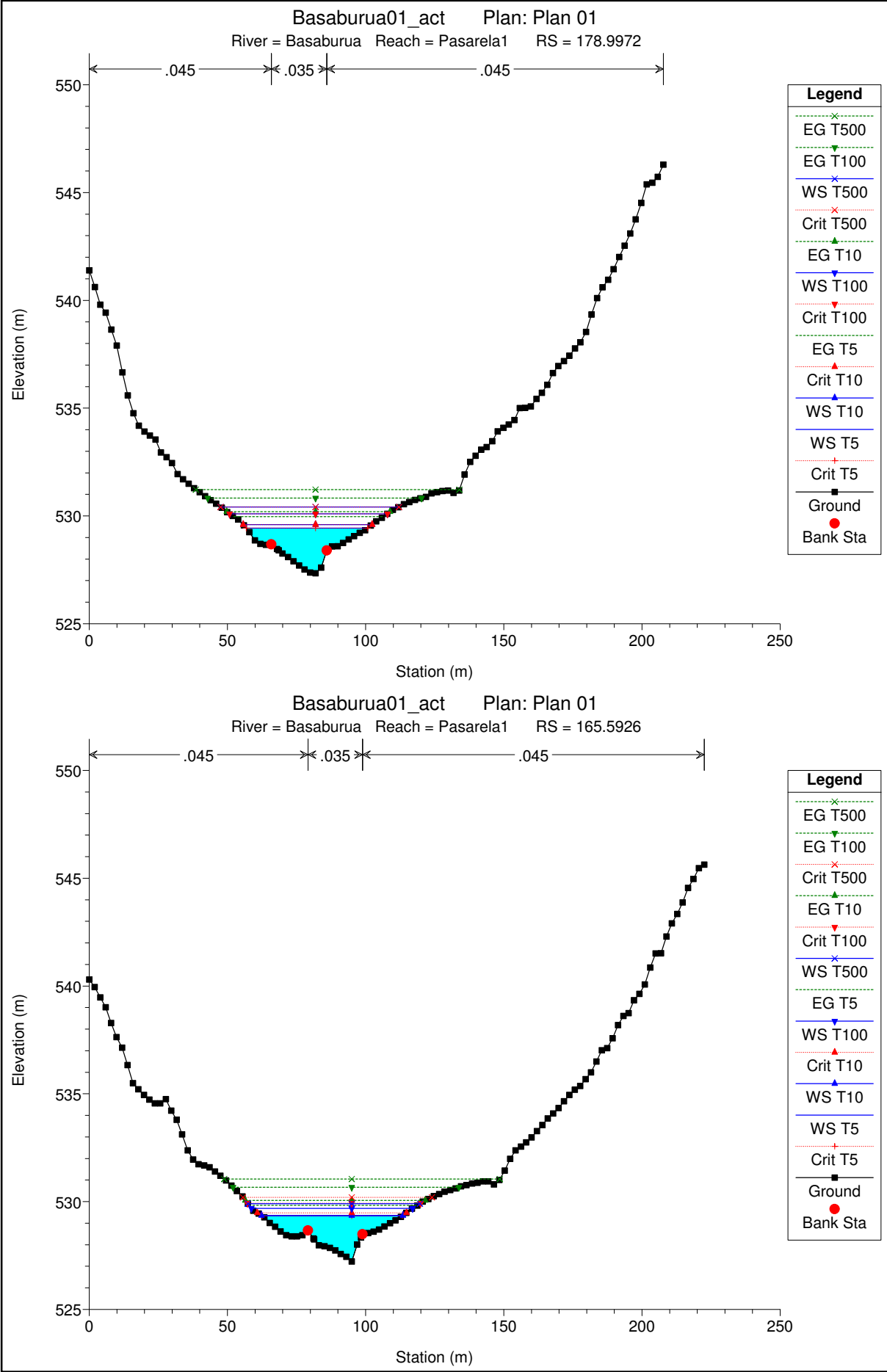


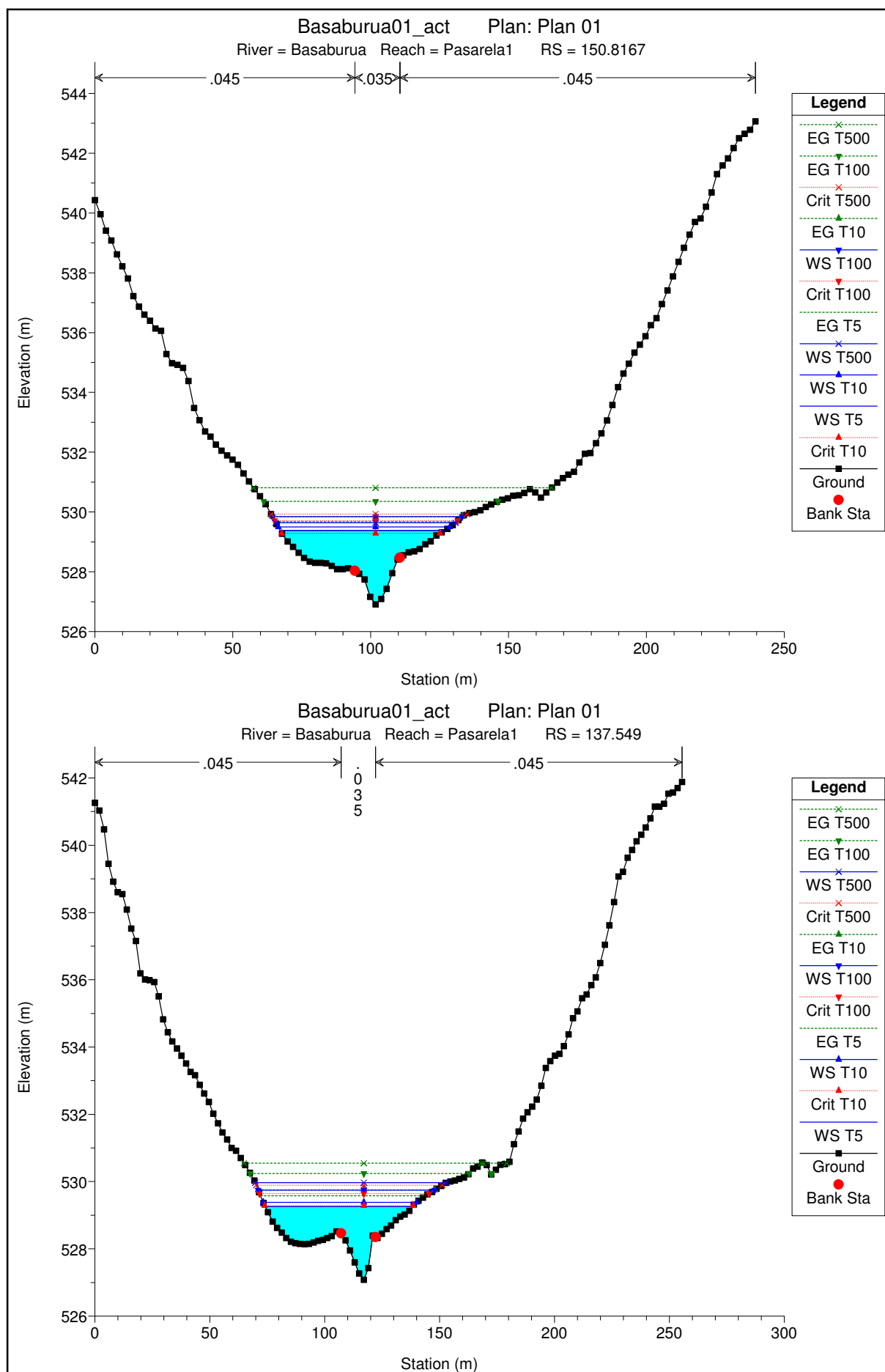


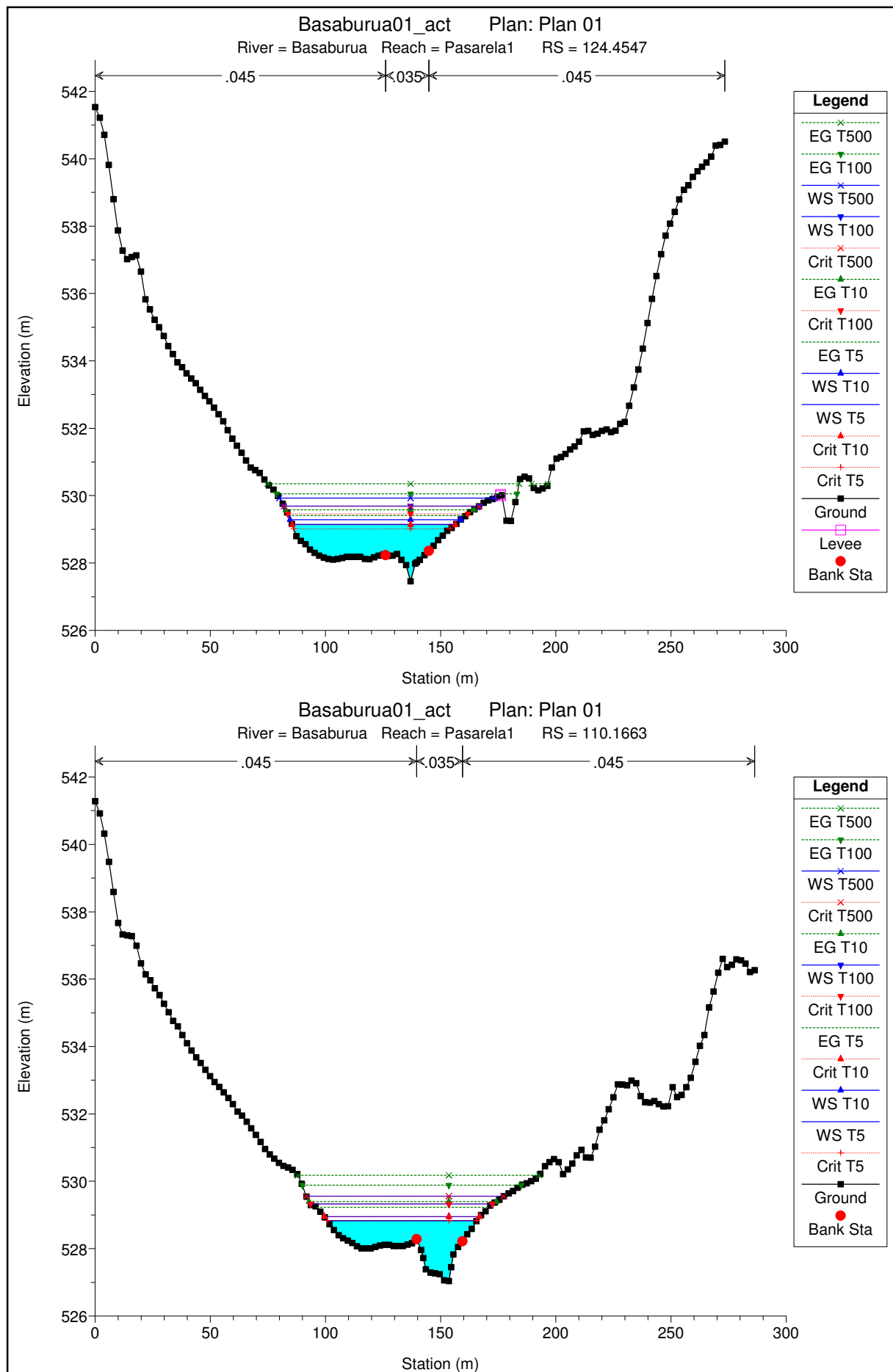


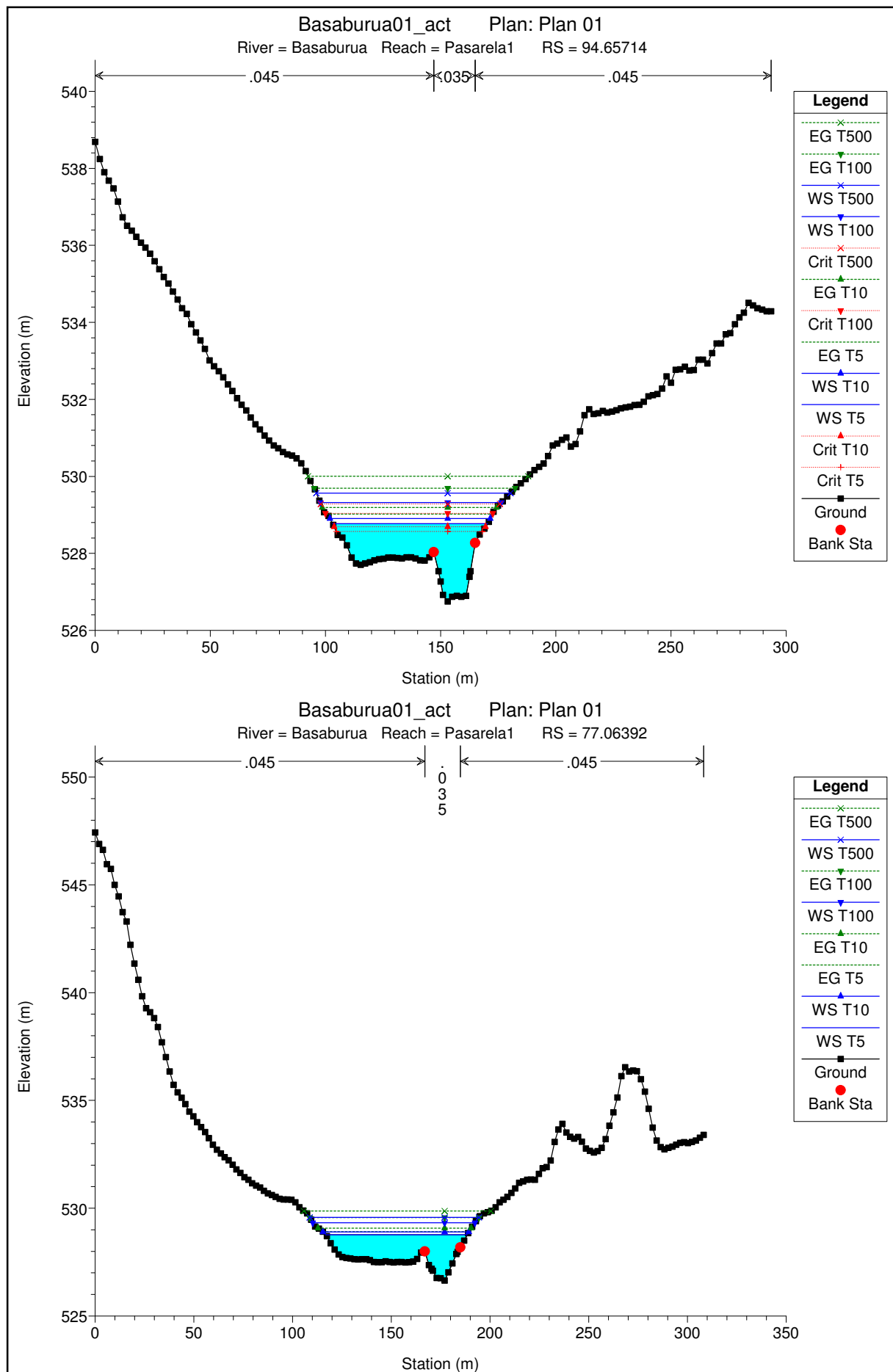


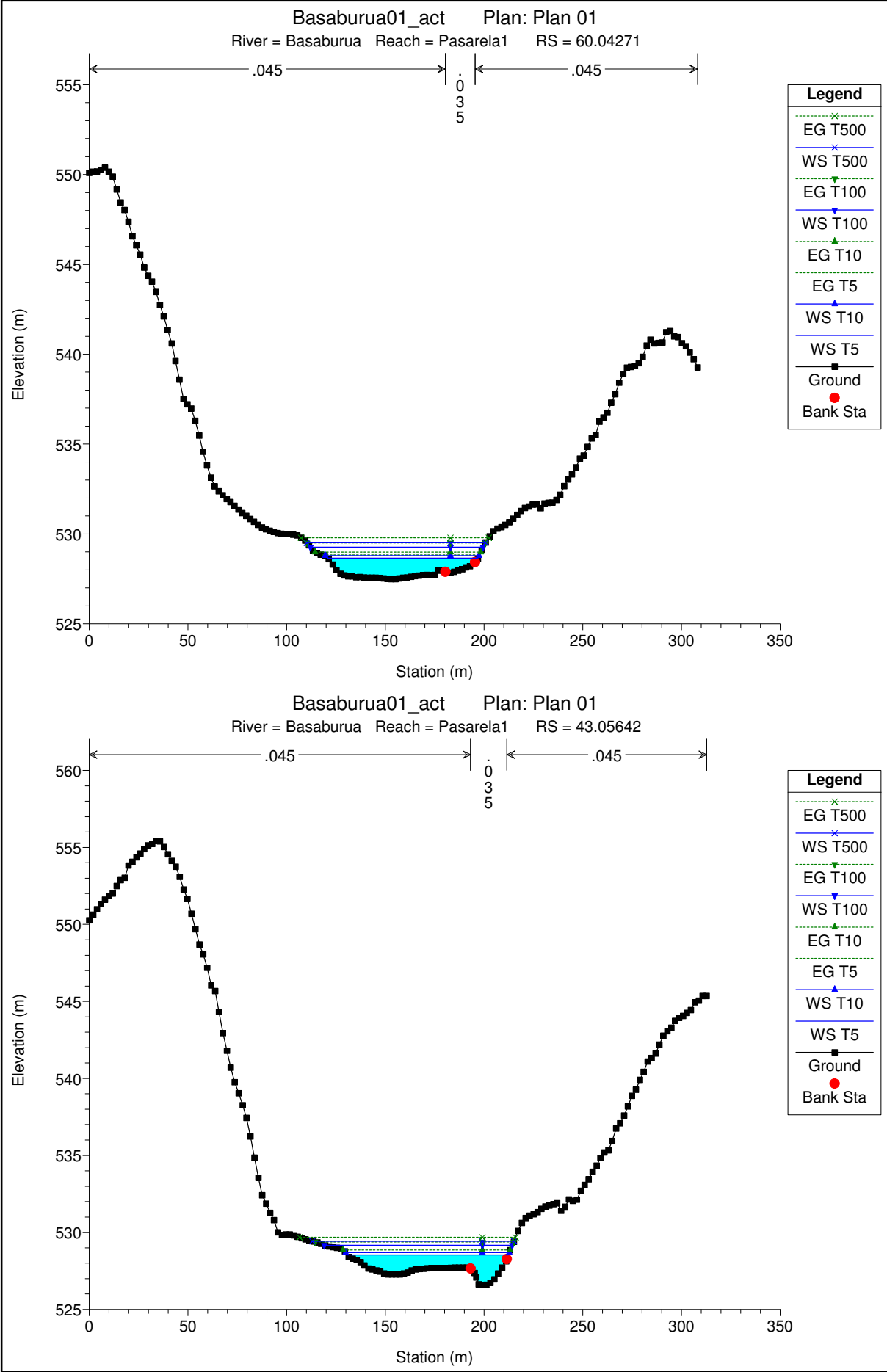


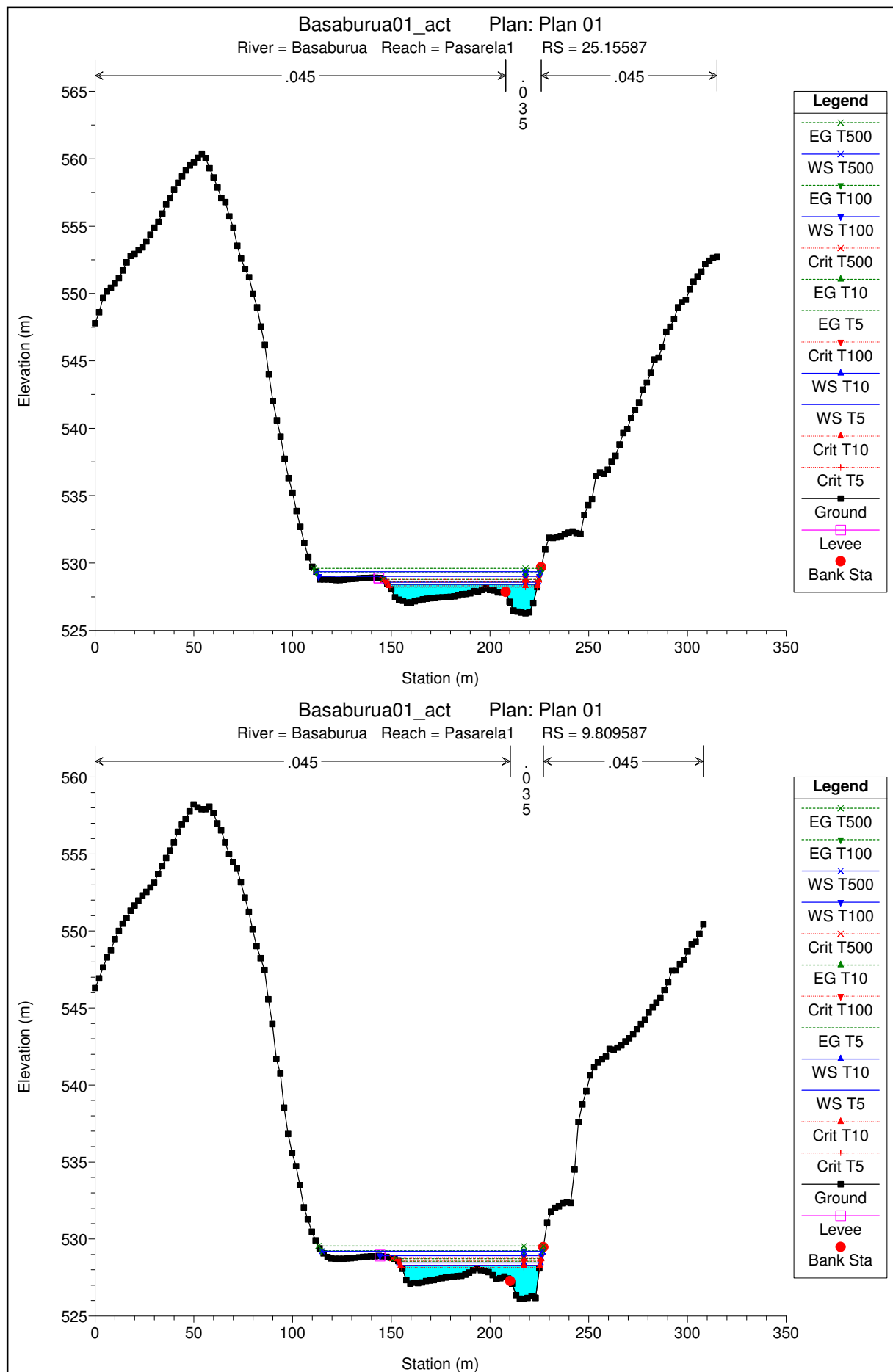




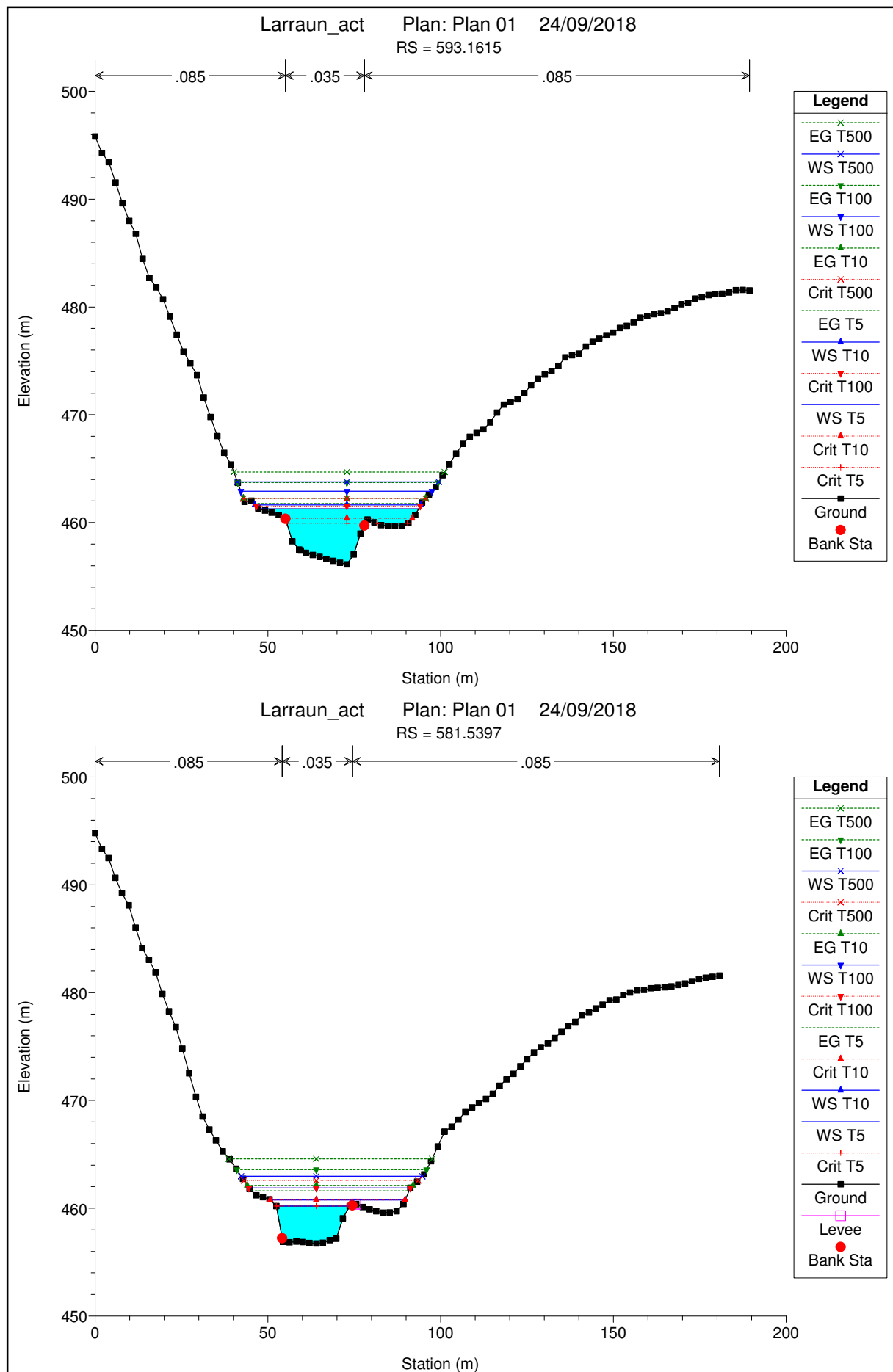


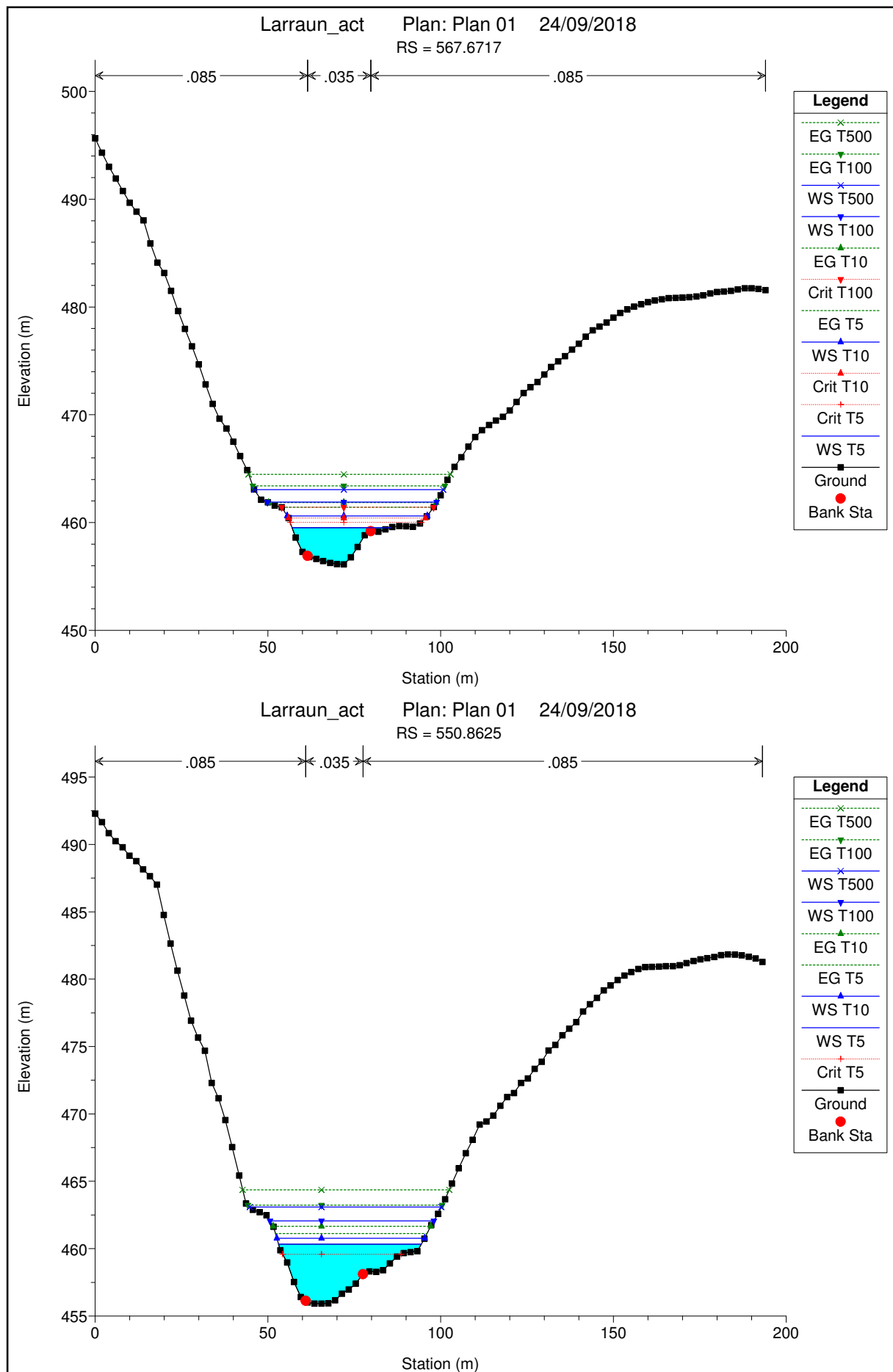


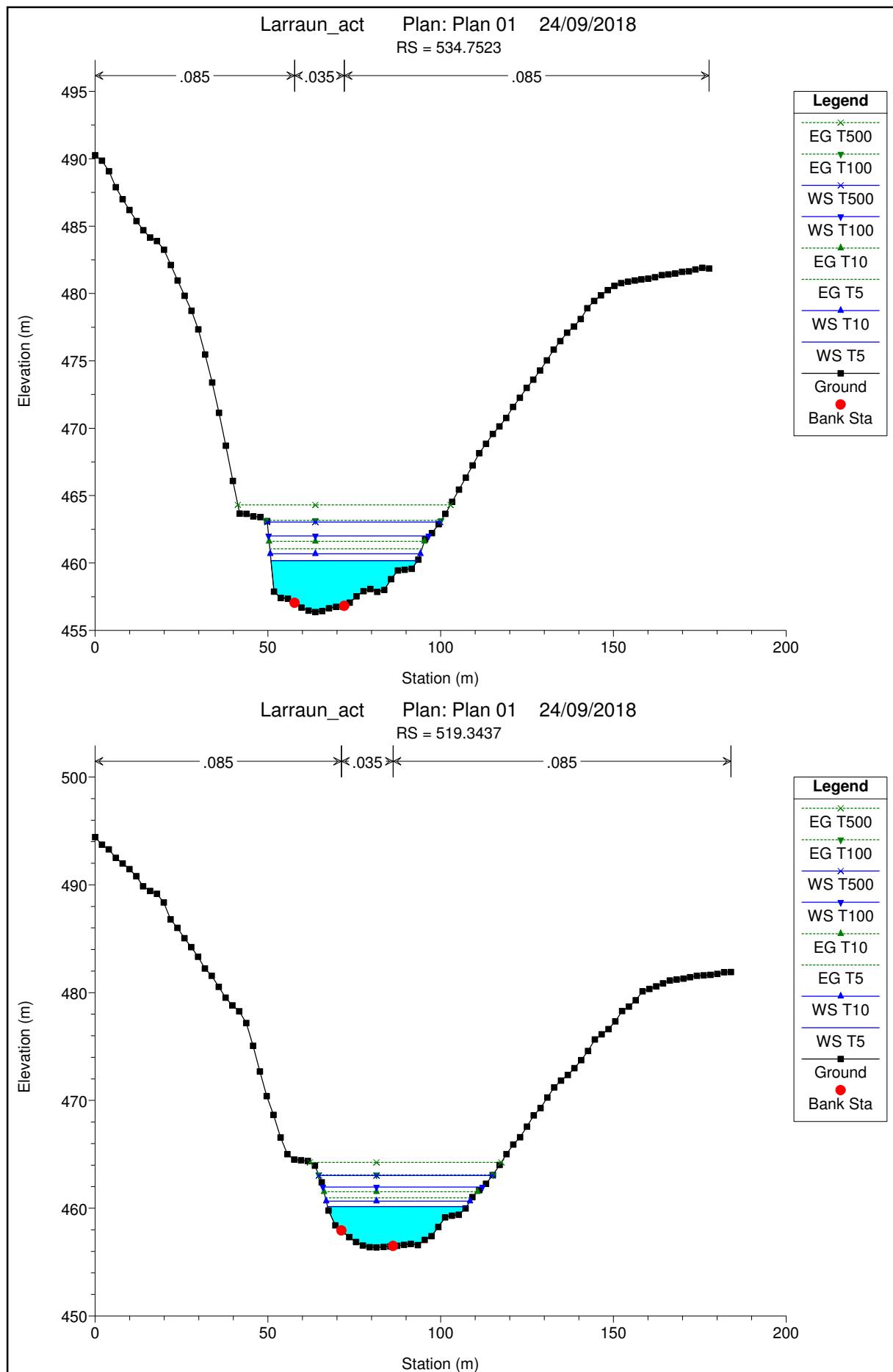


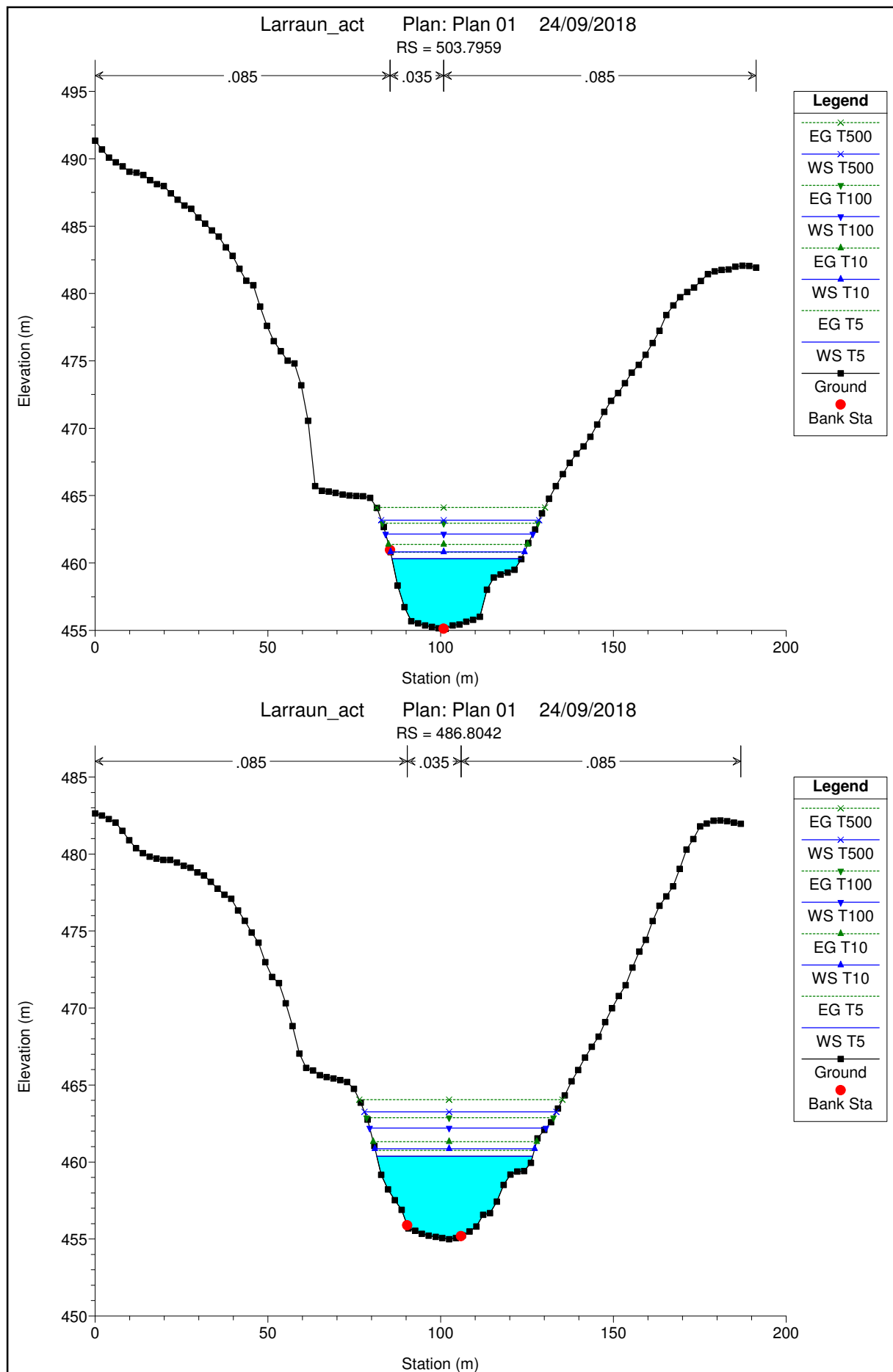


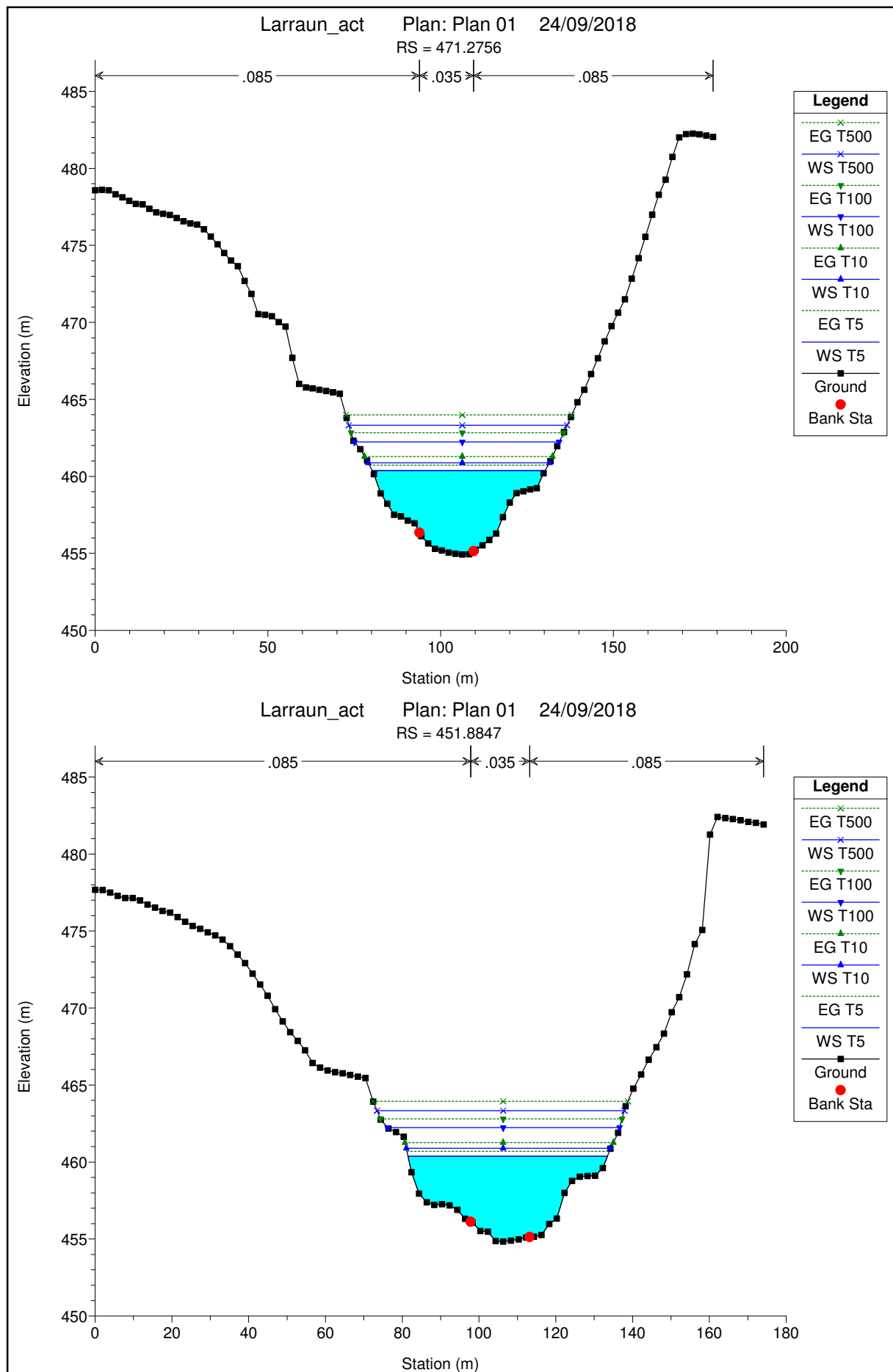
NUEVA PASARELA PEATONAL SOBRE EL RÍO LARRAUN

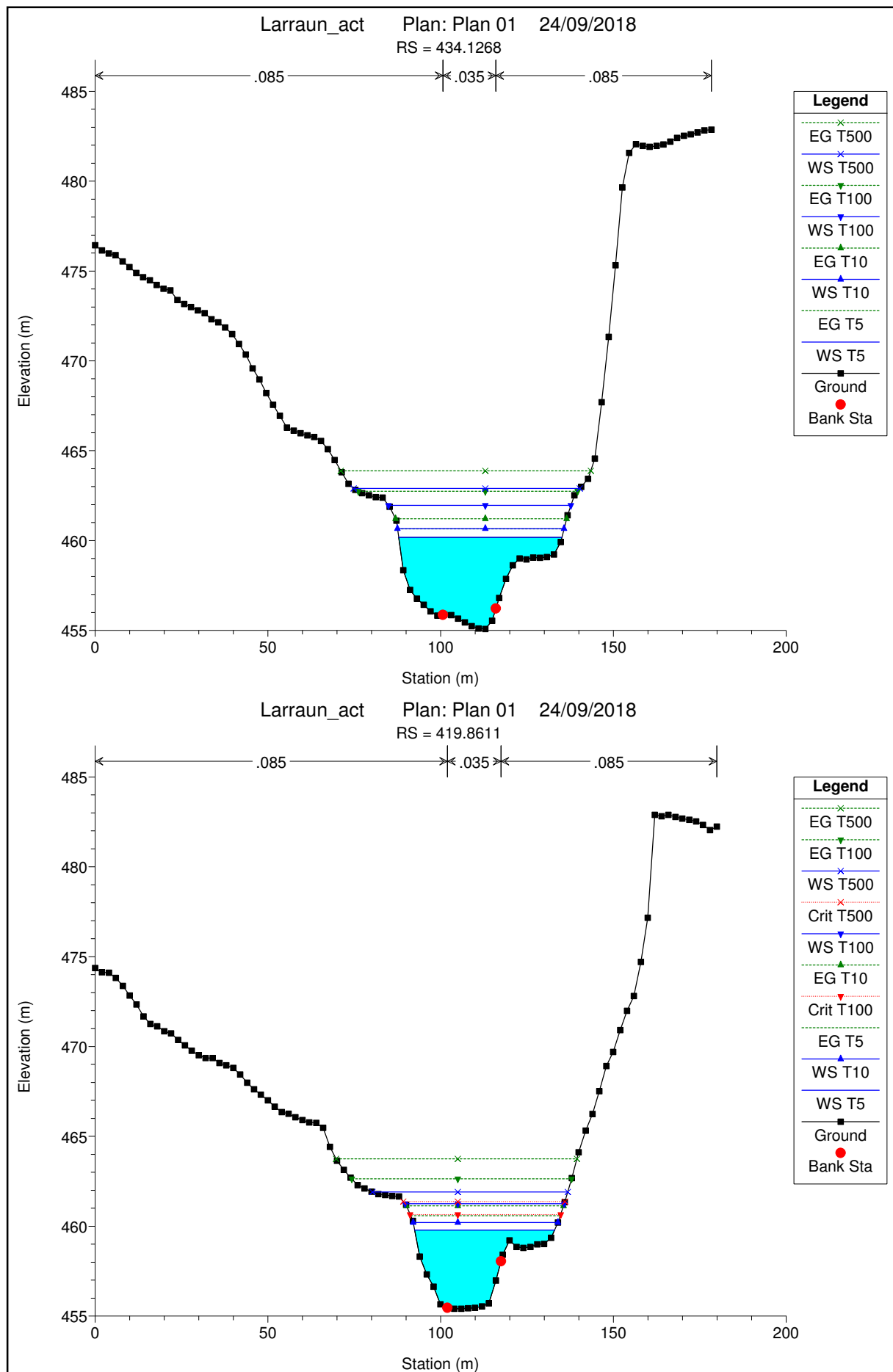


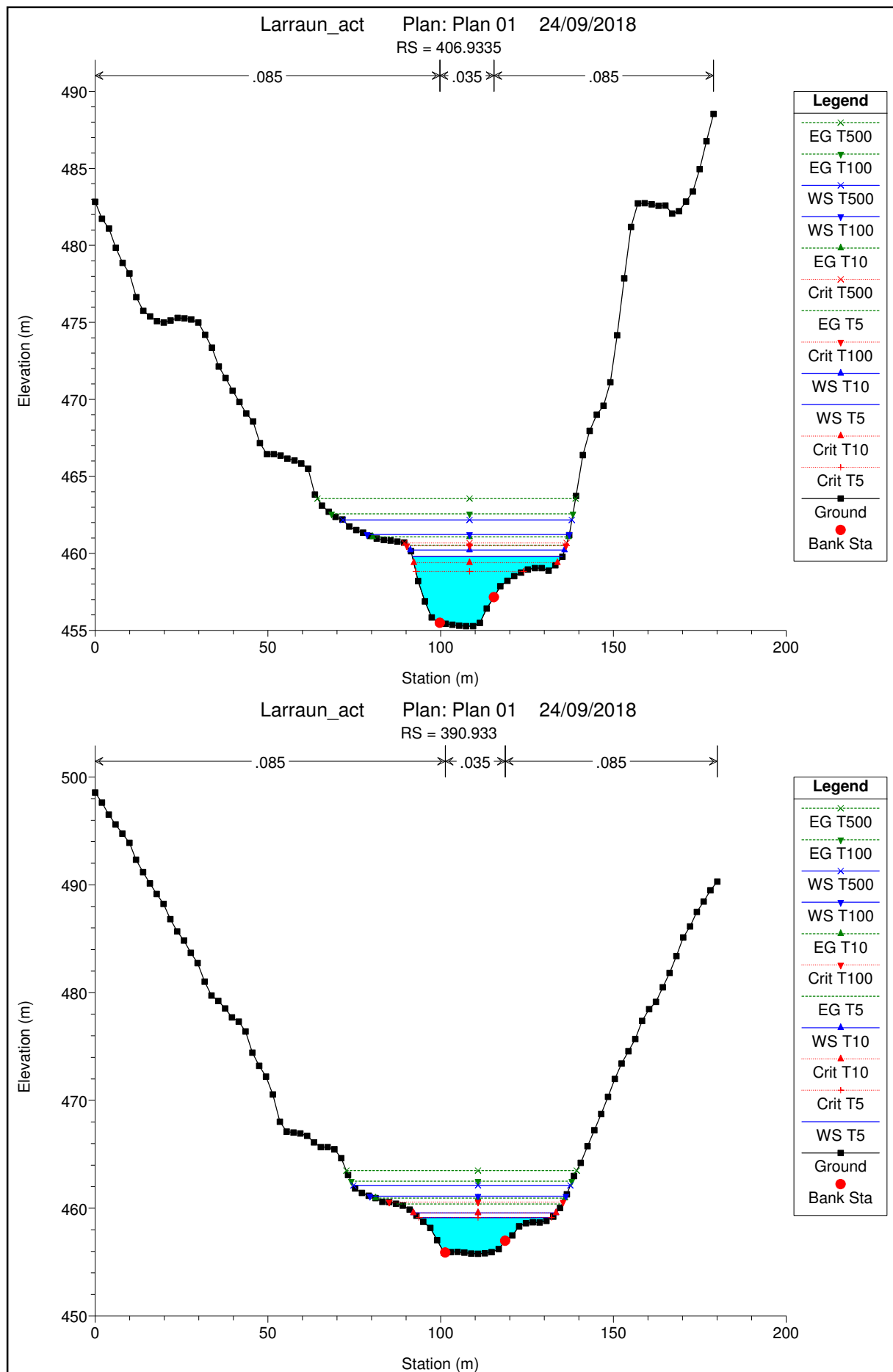


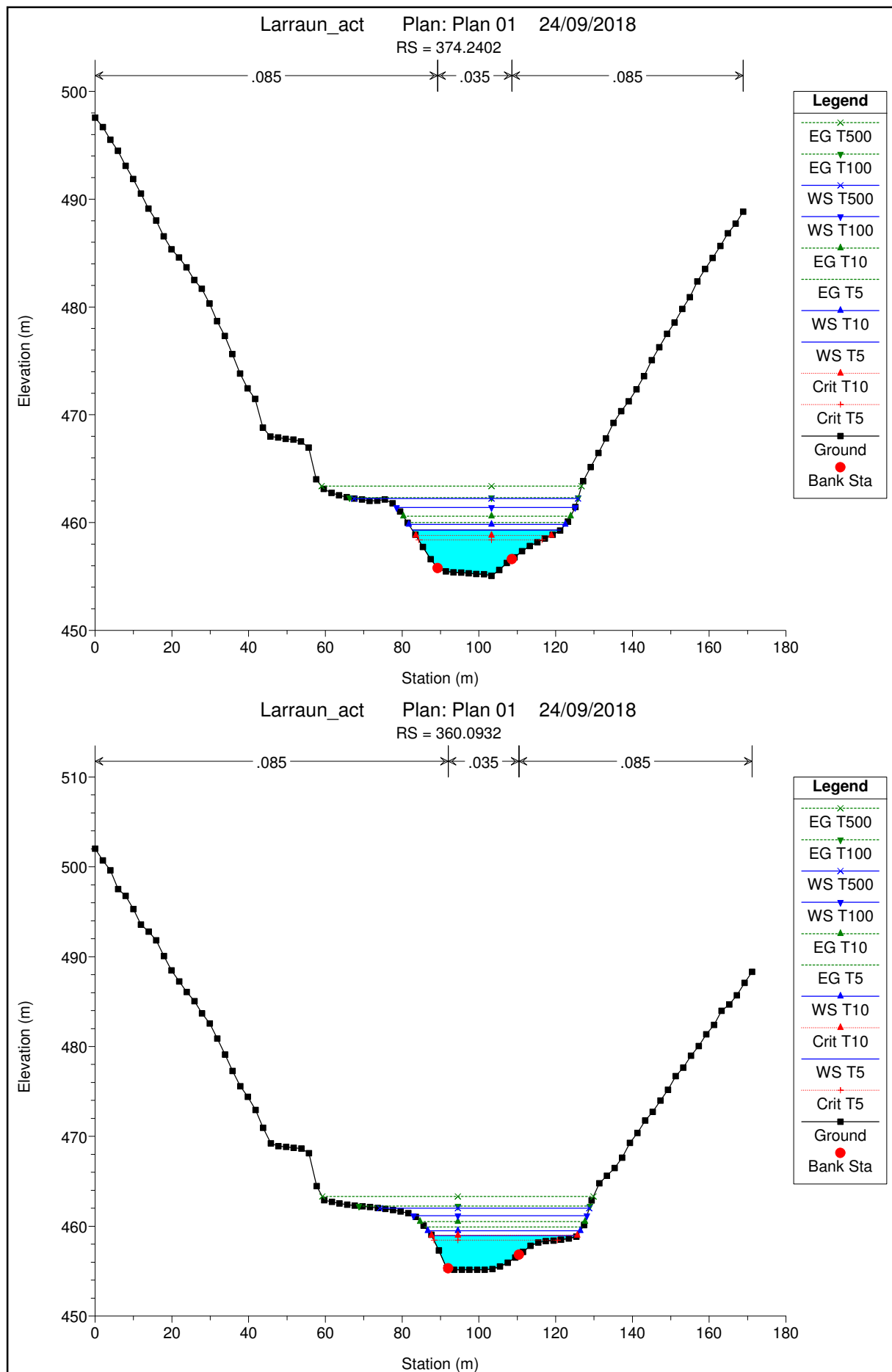


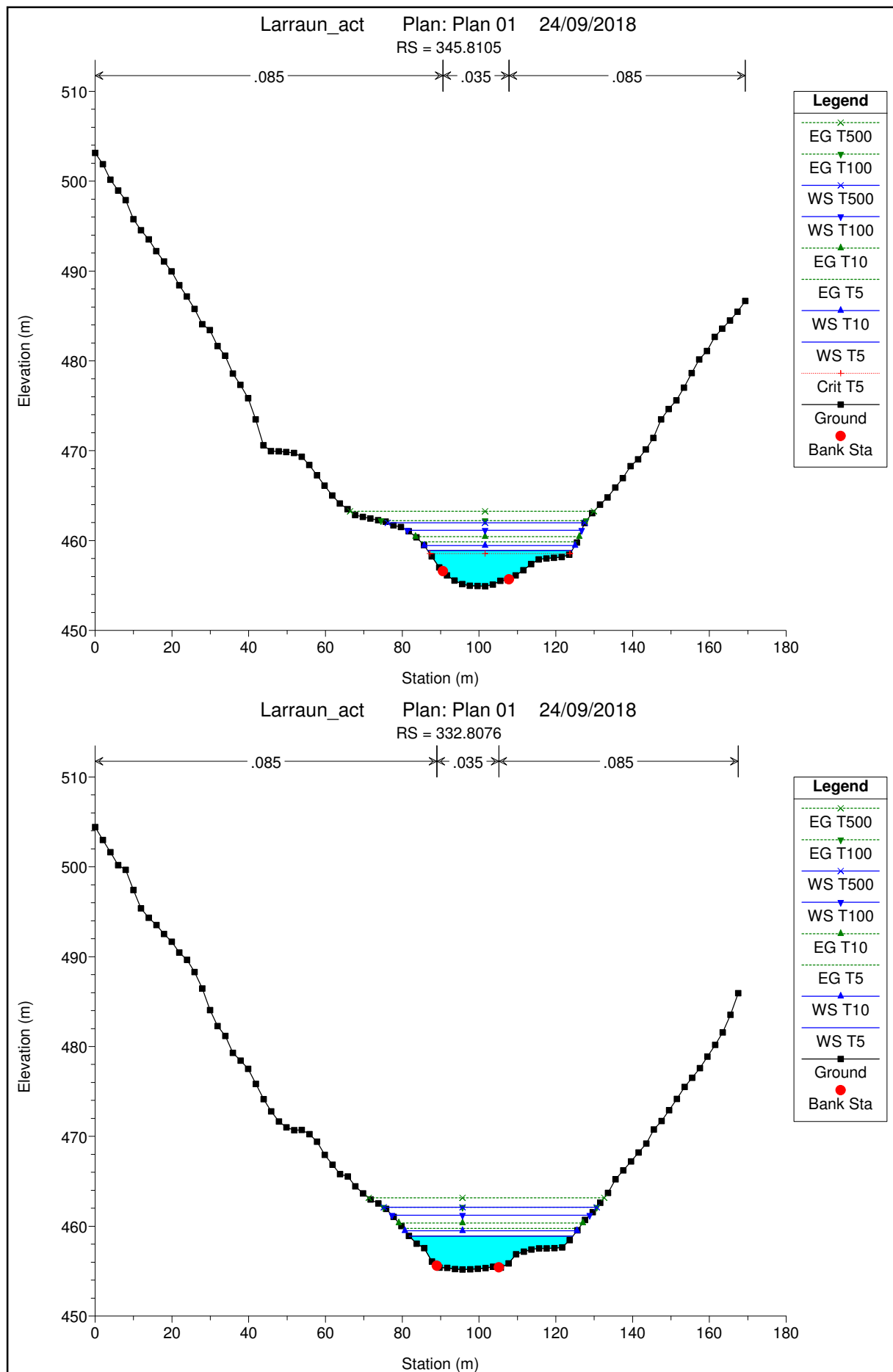


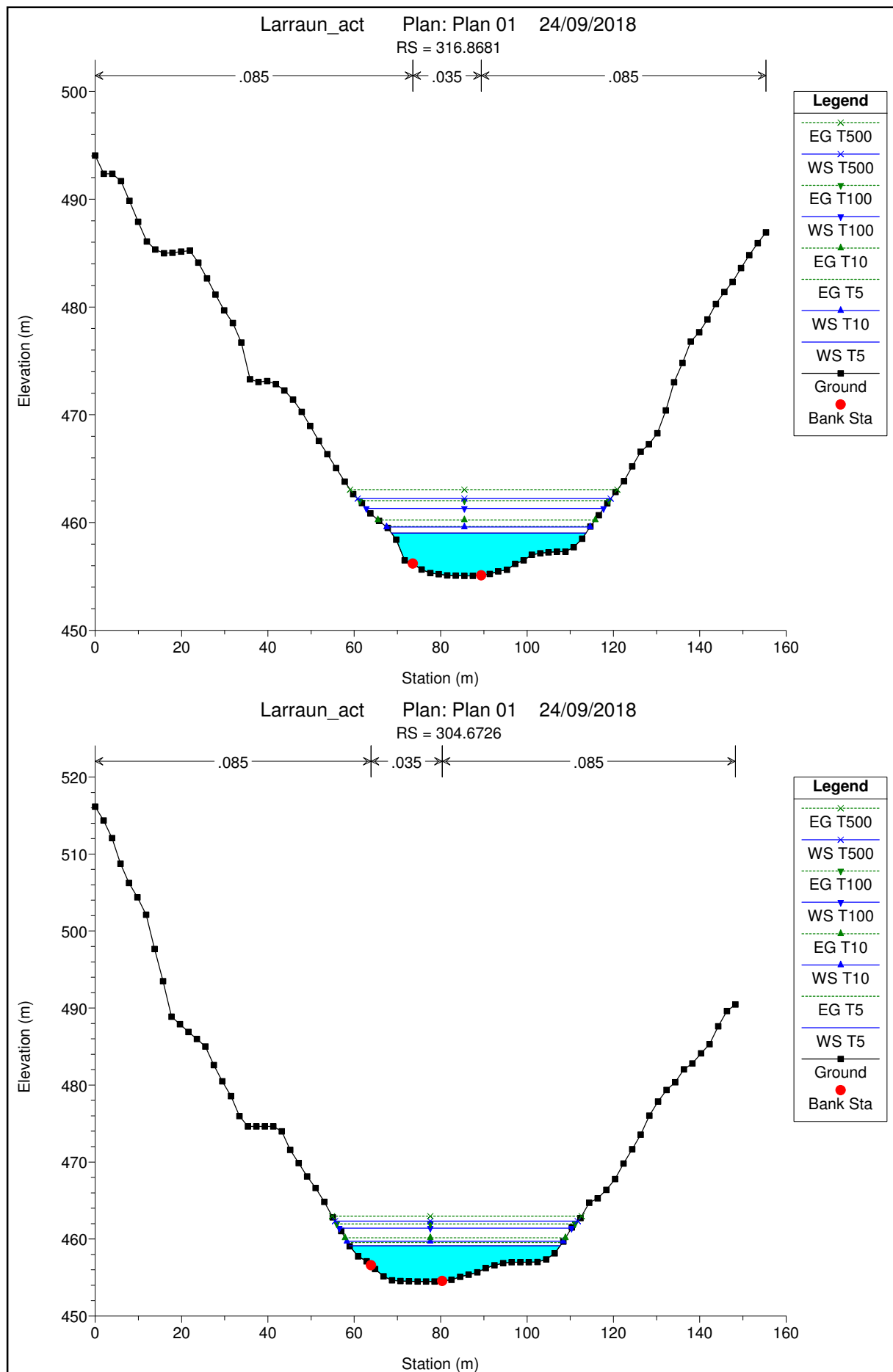


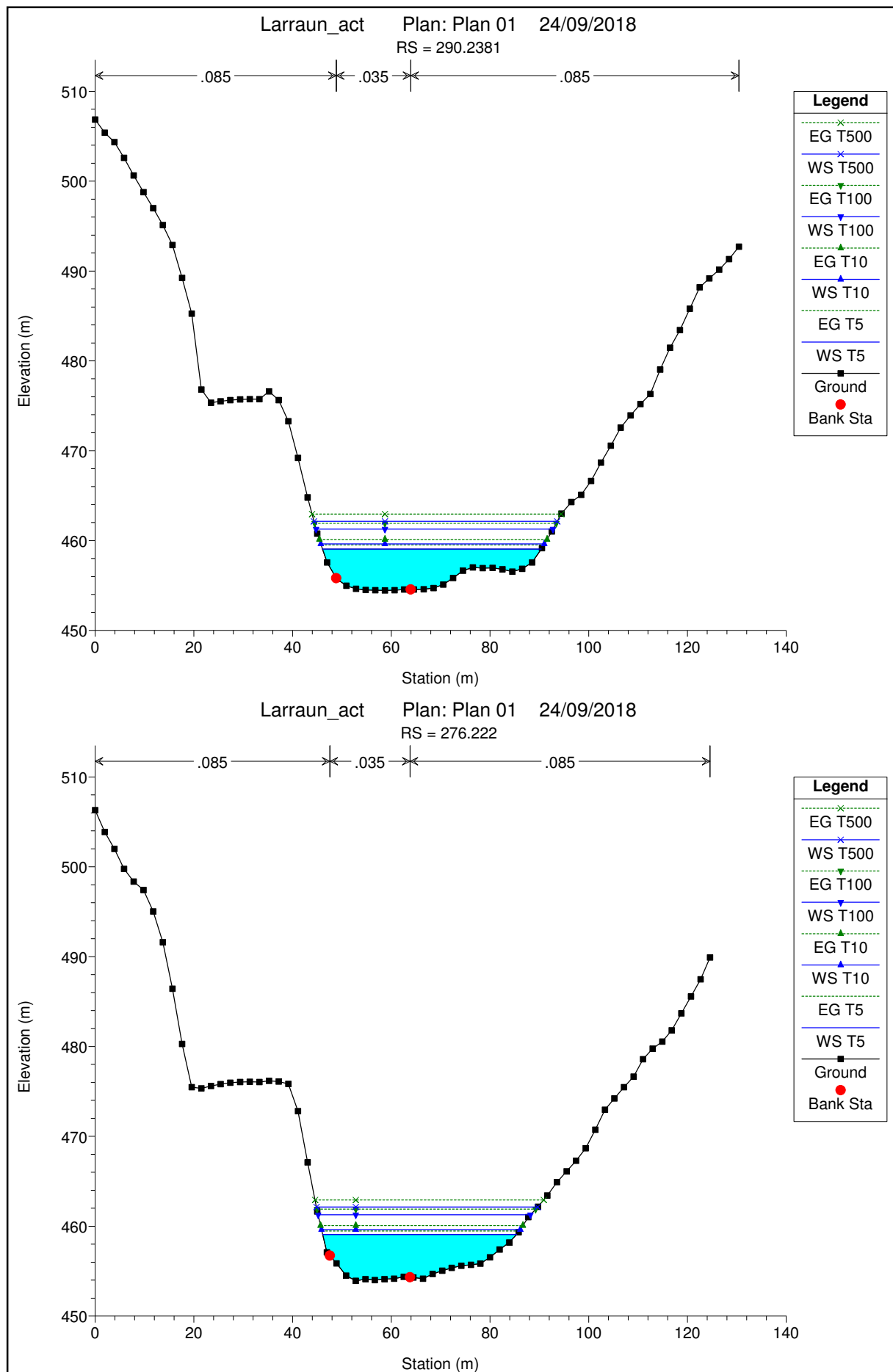


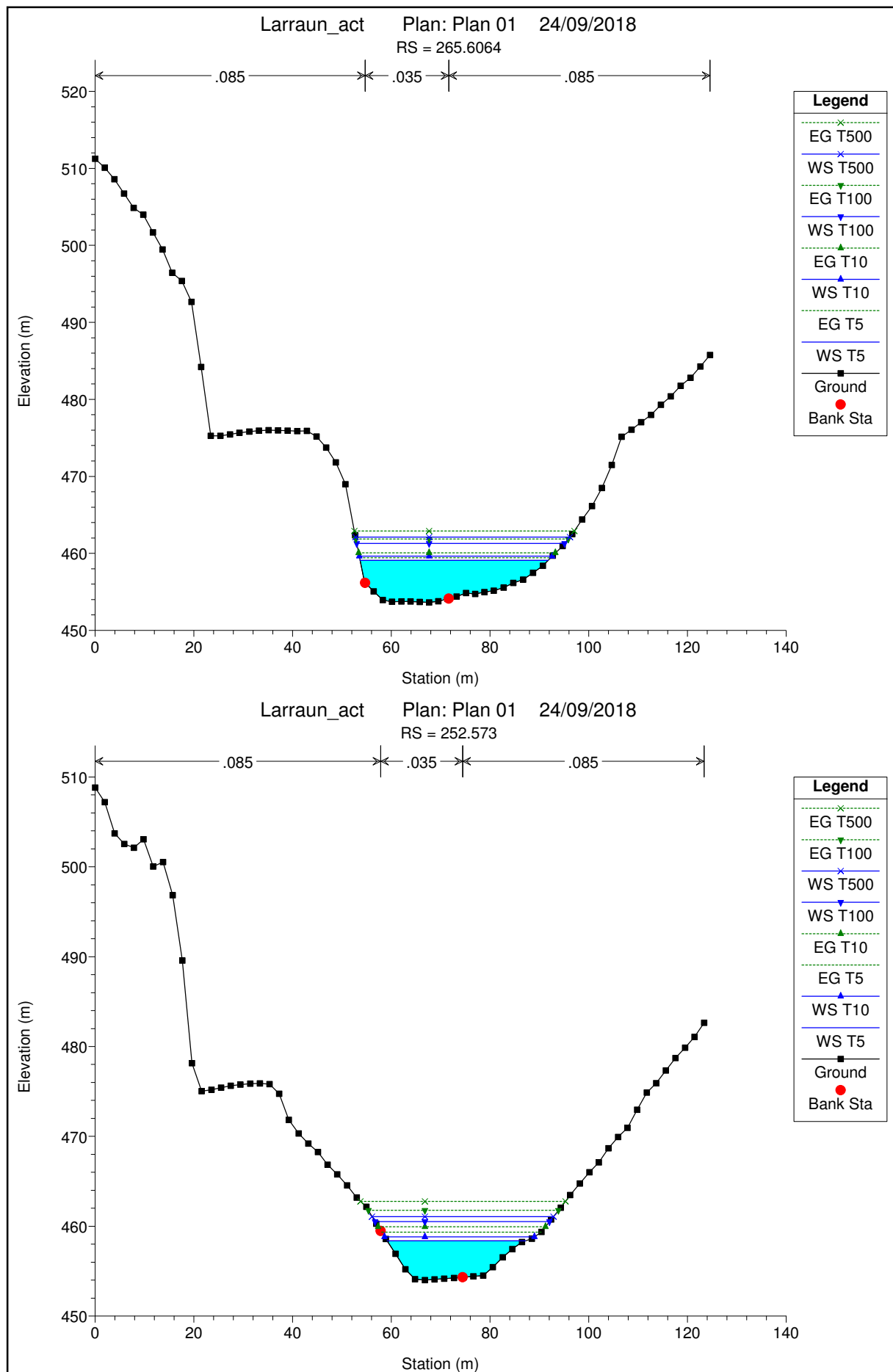


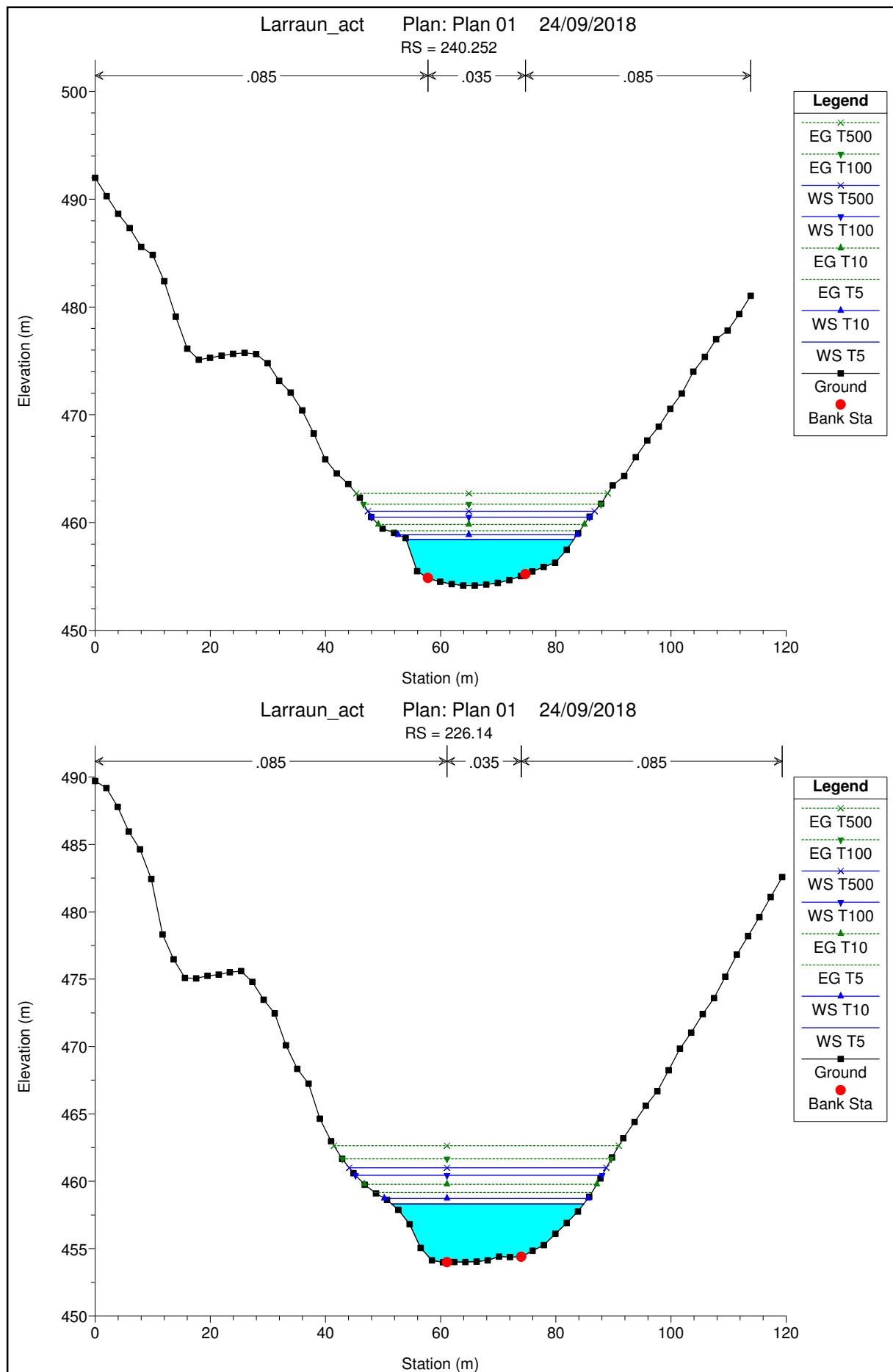


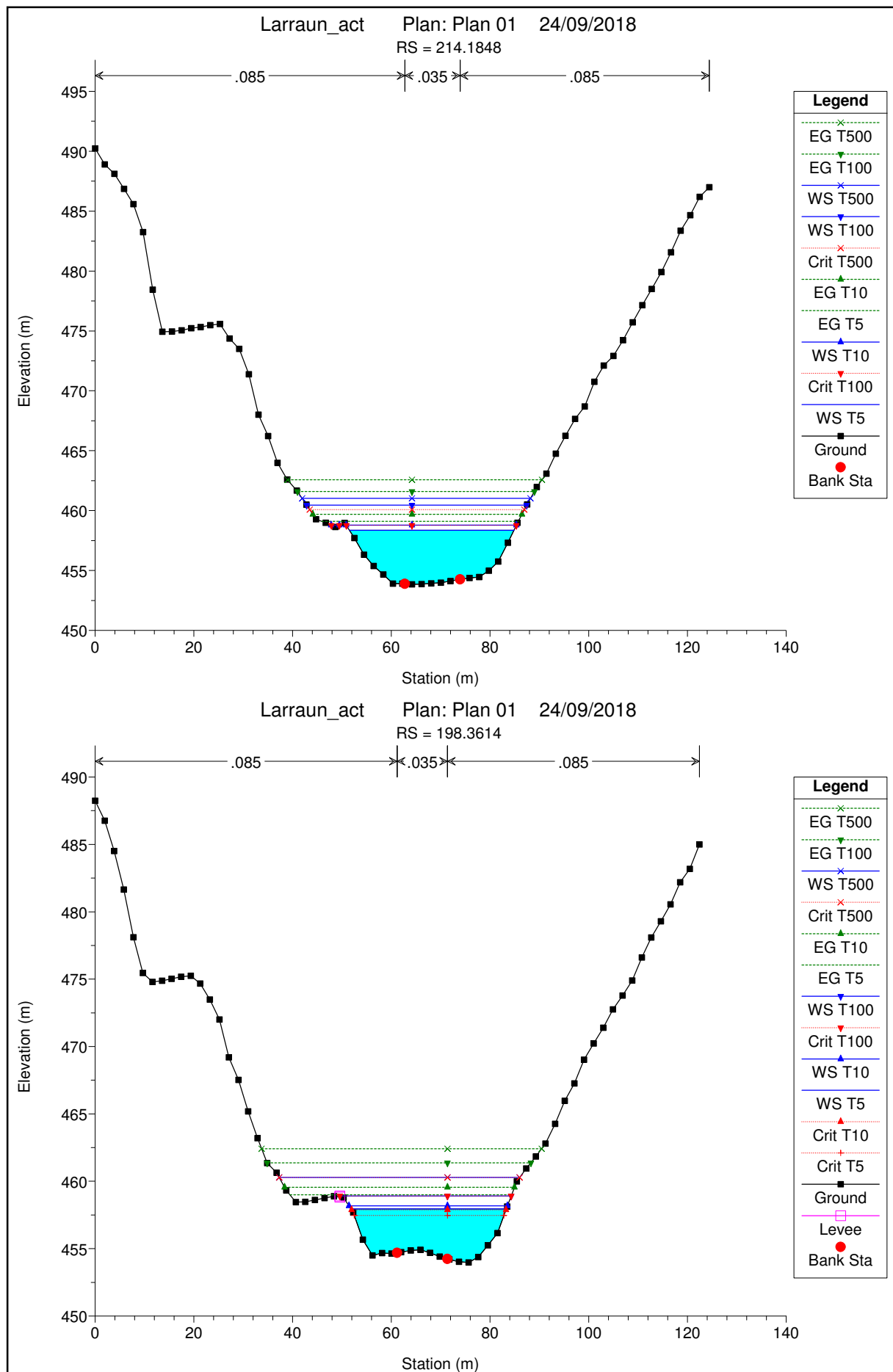


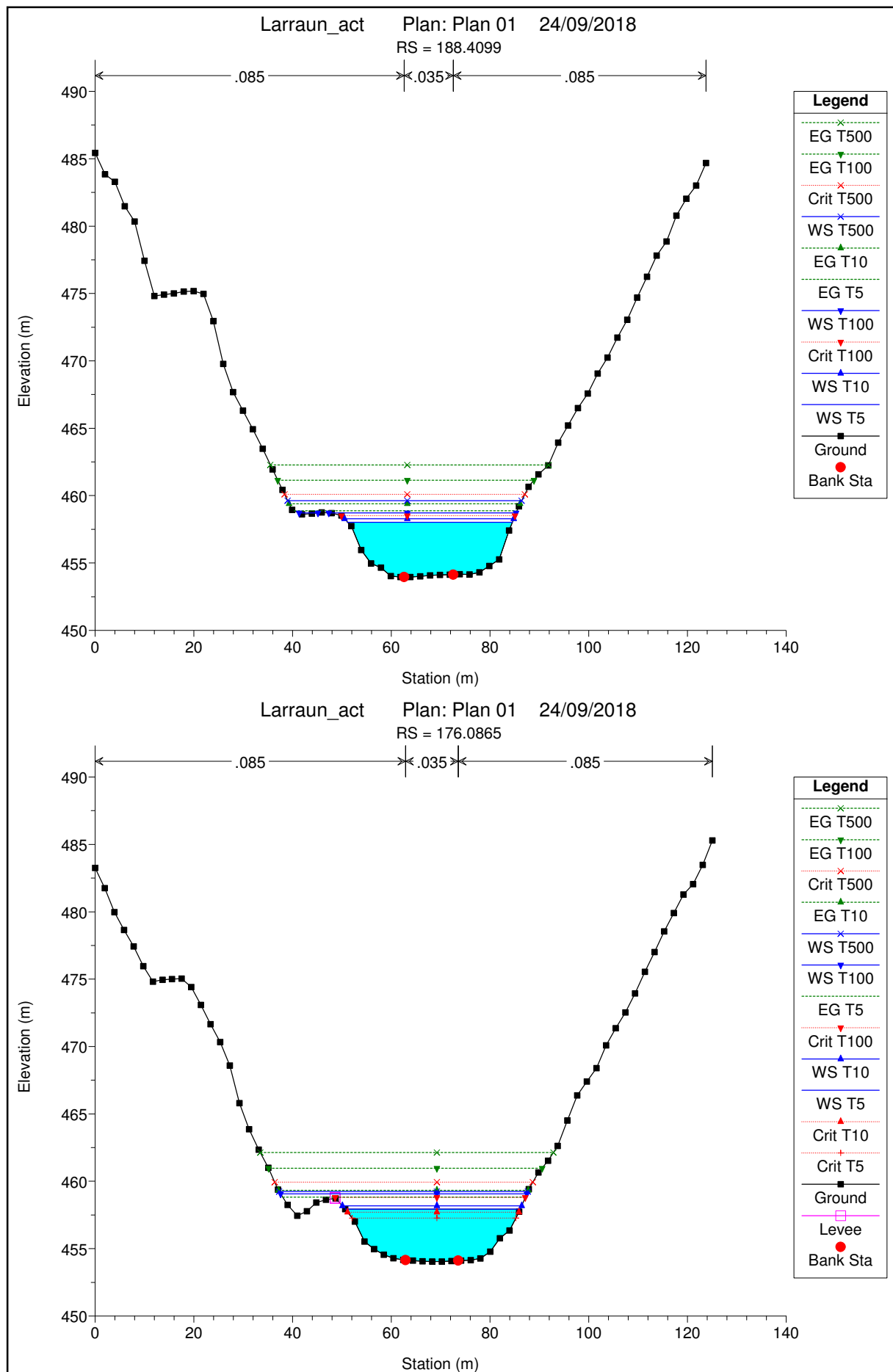


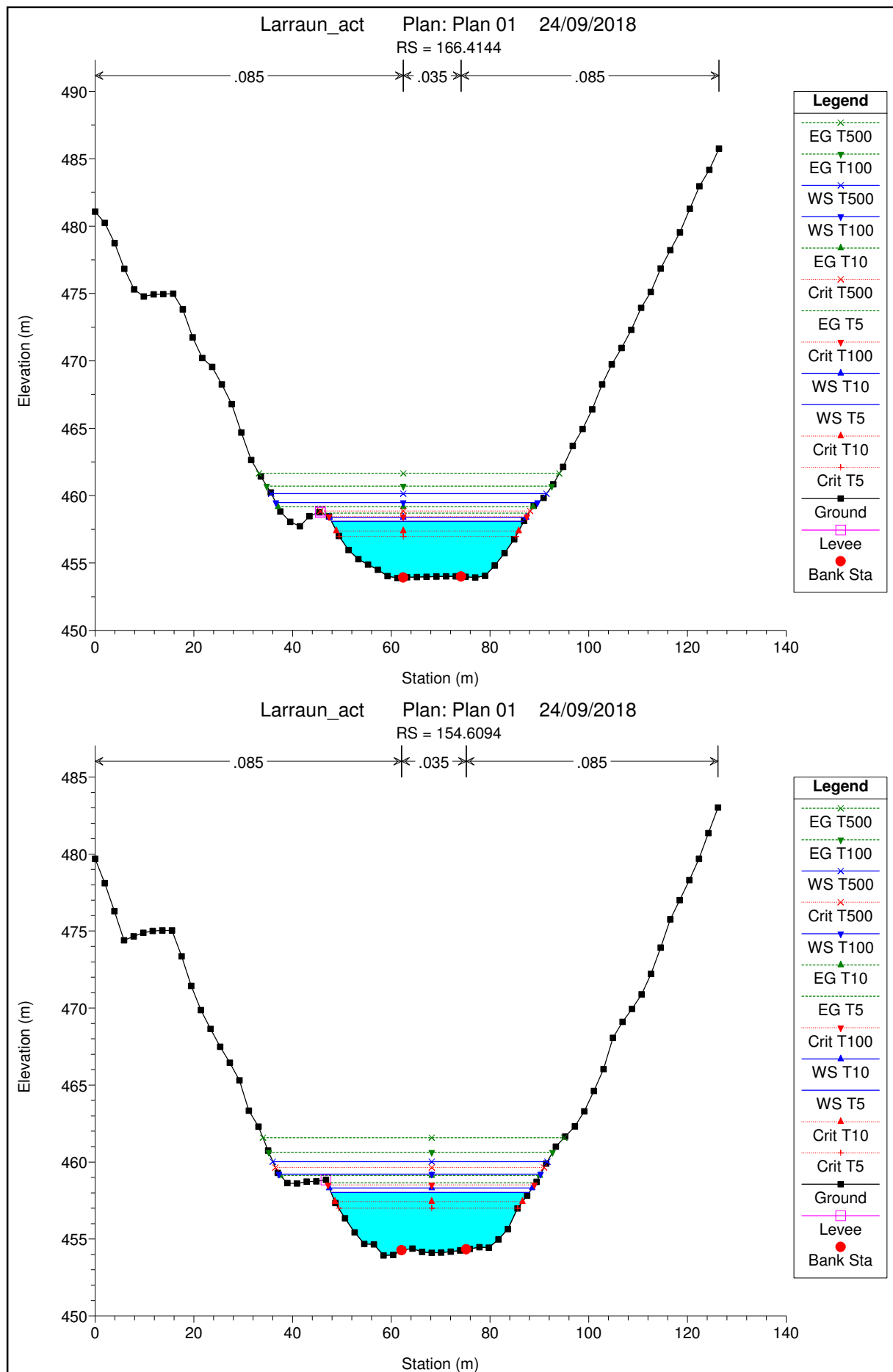


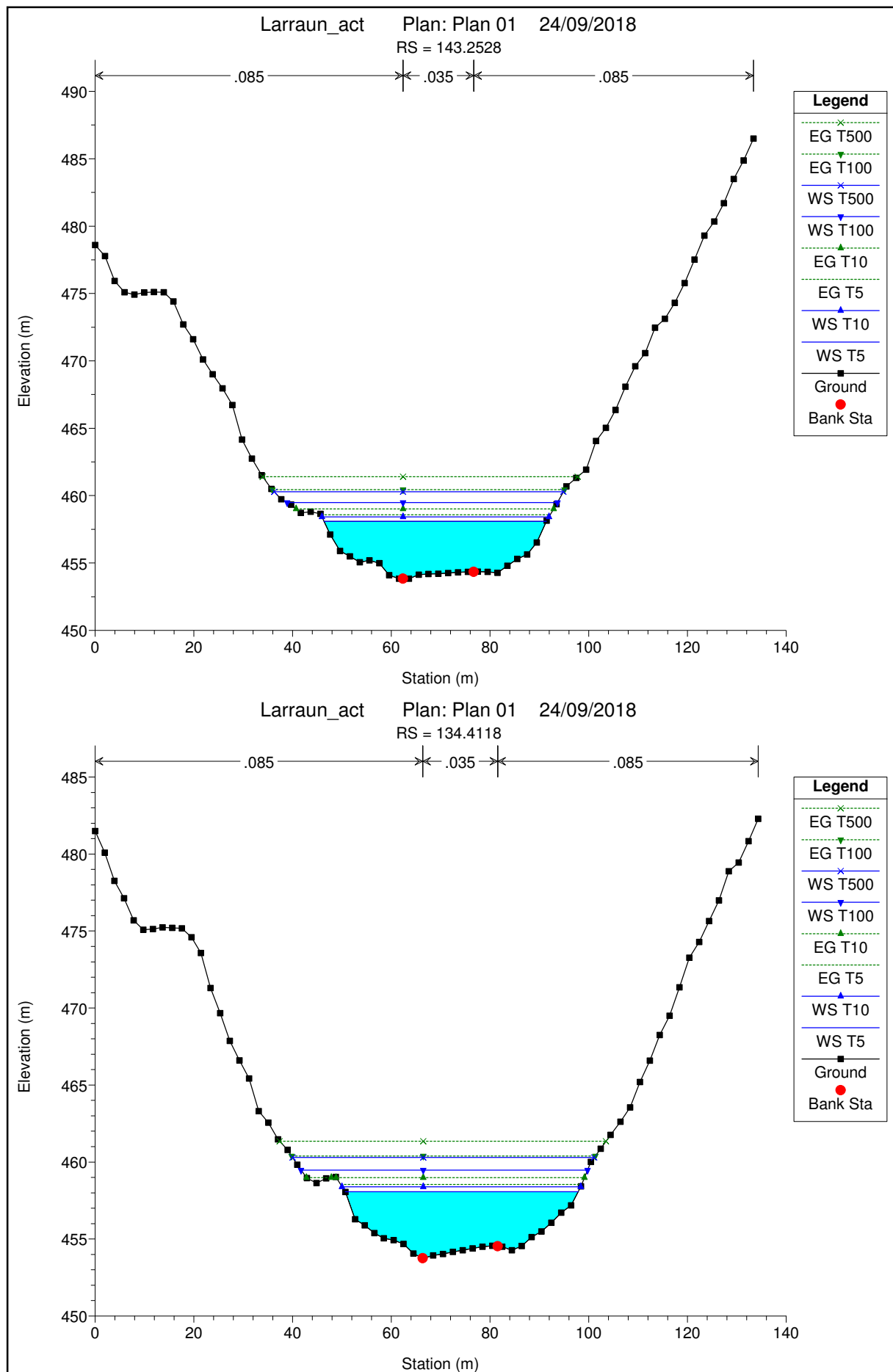


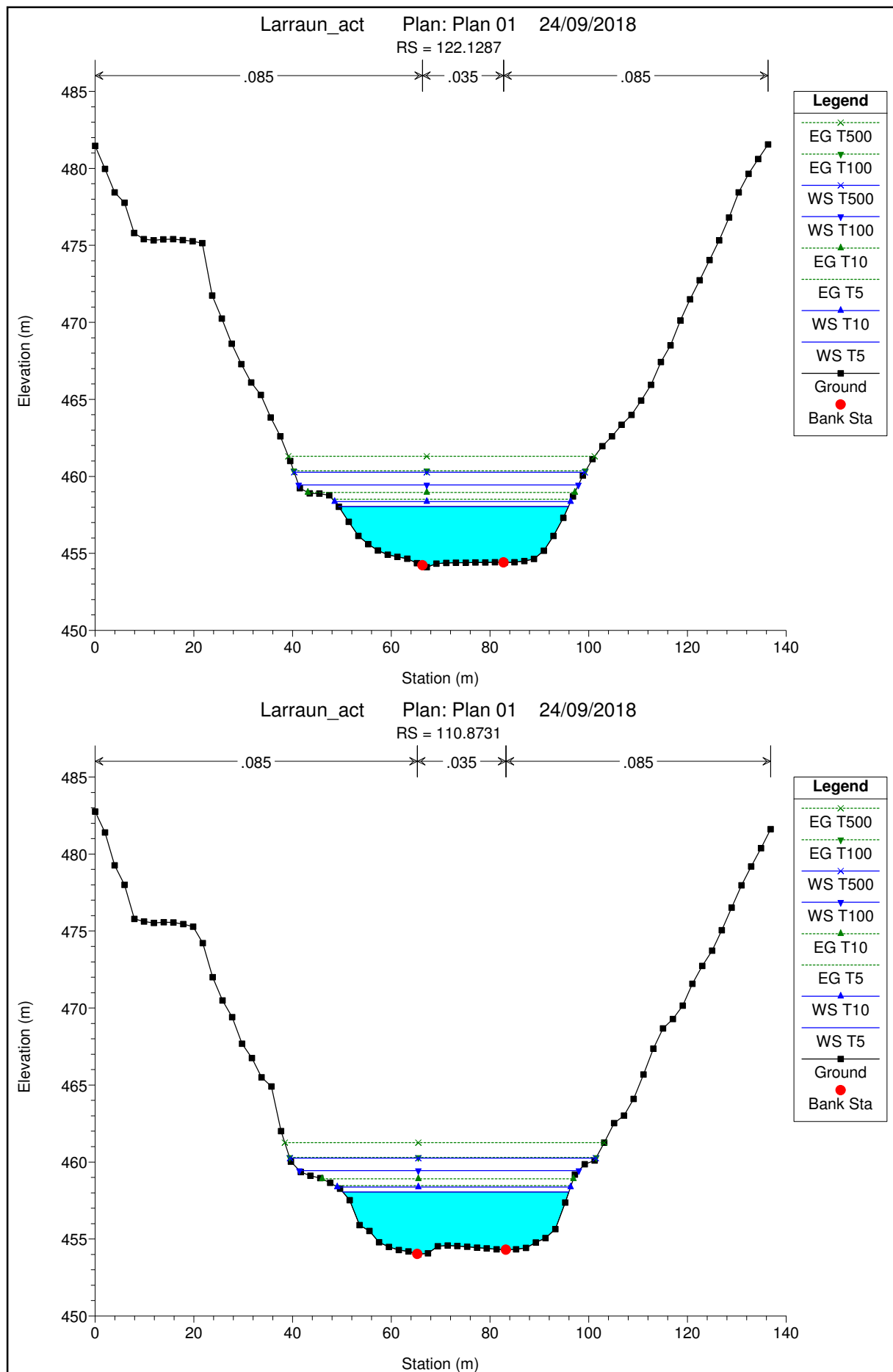


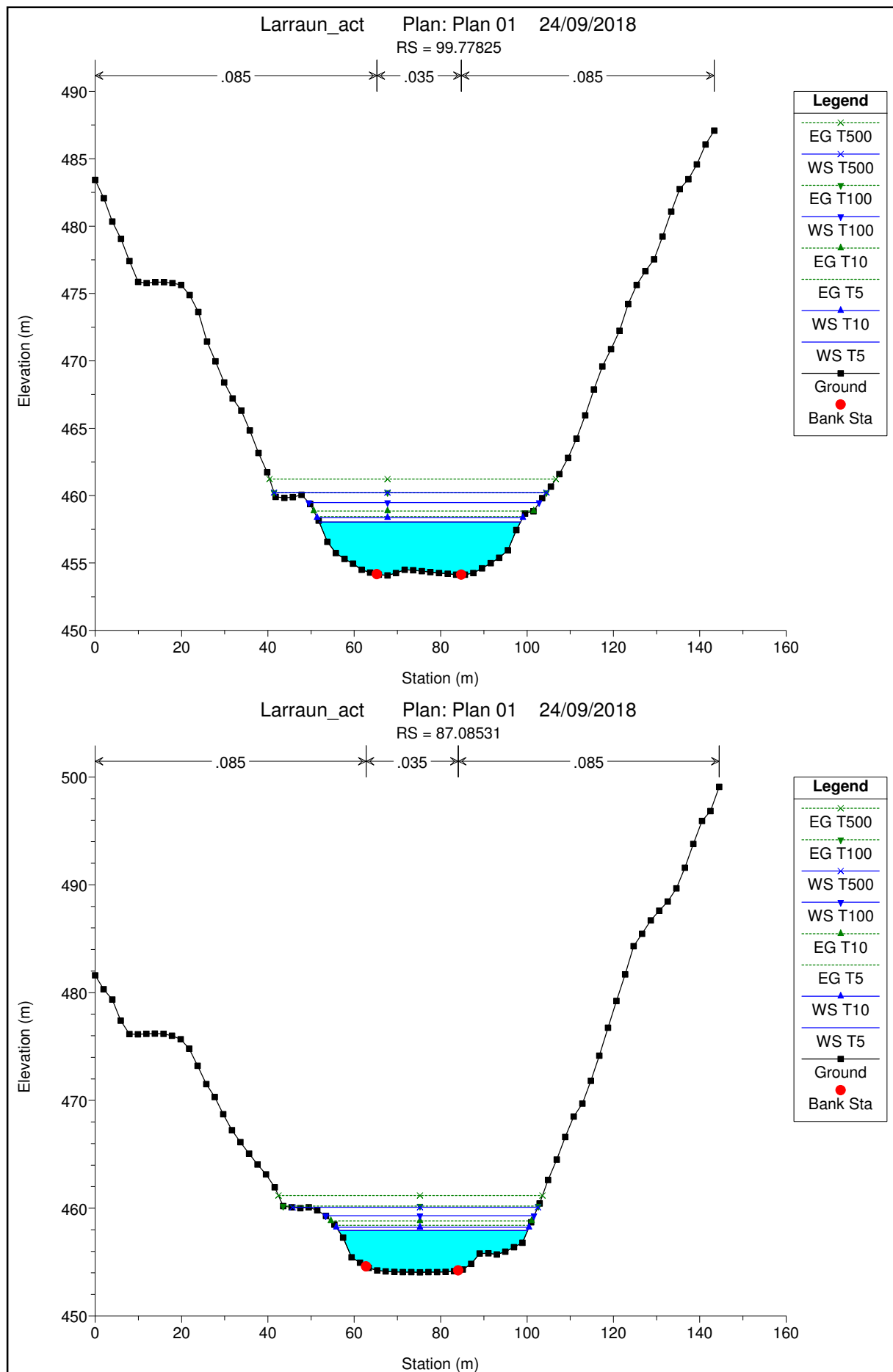


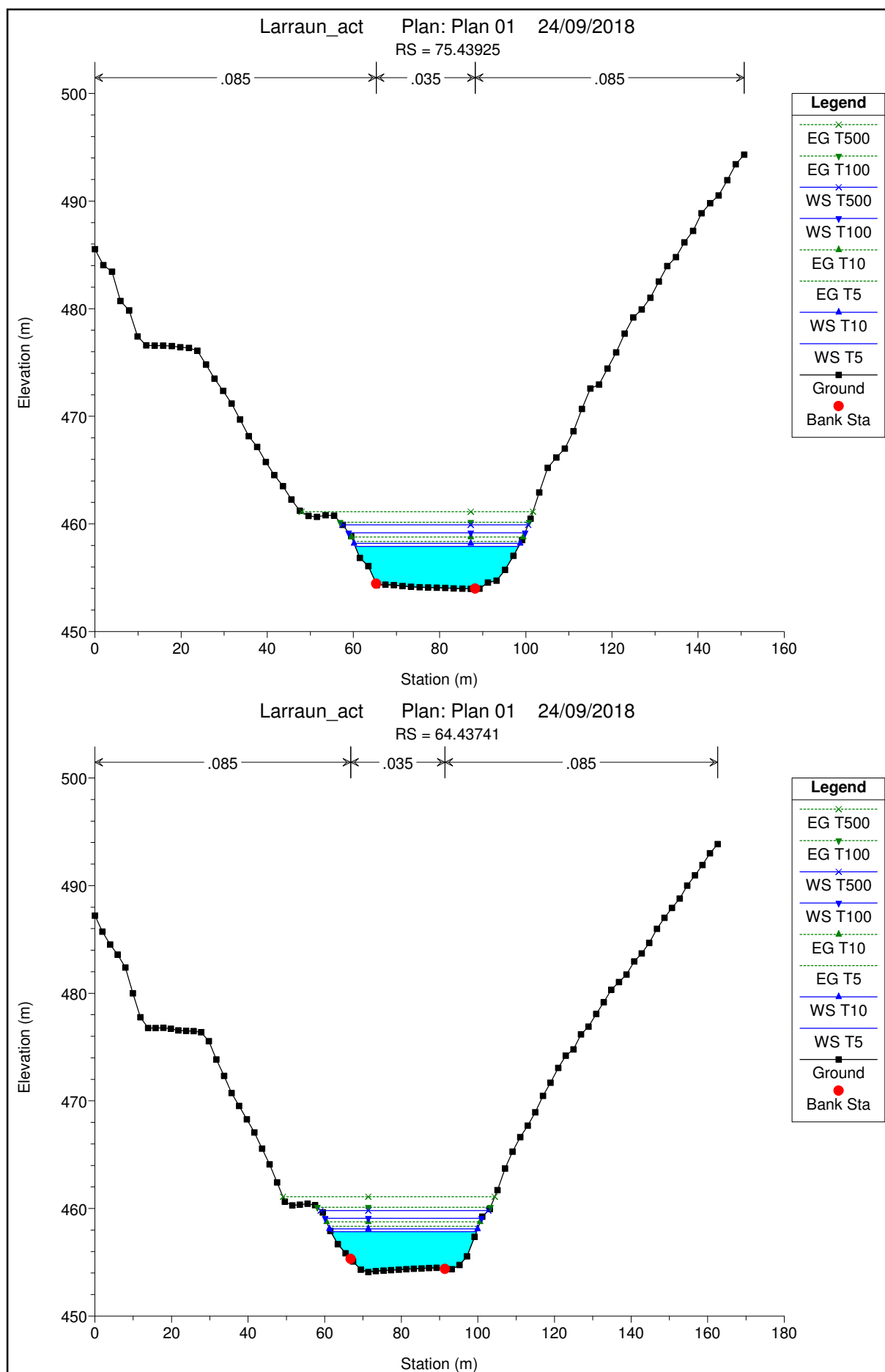


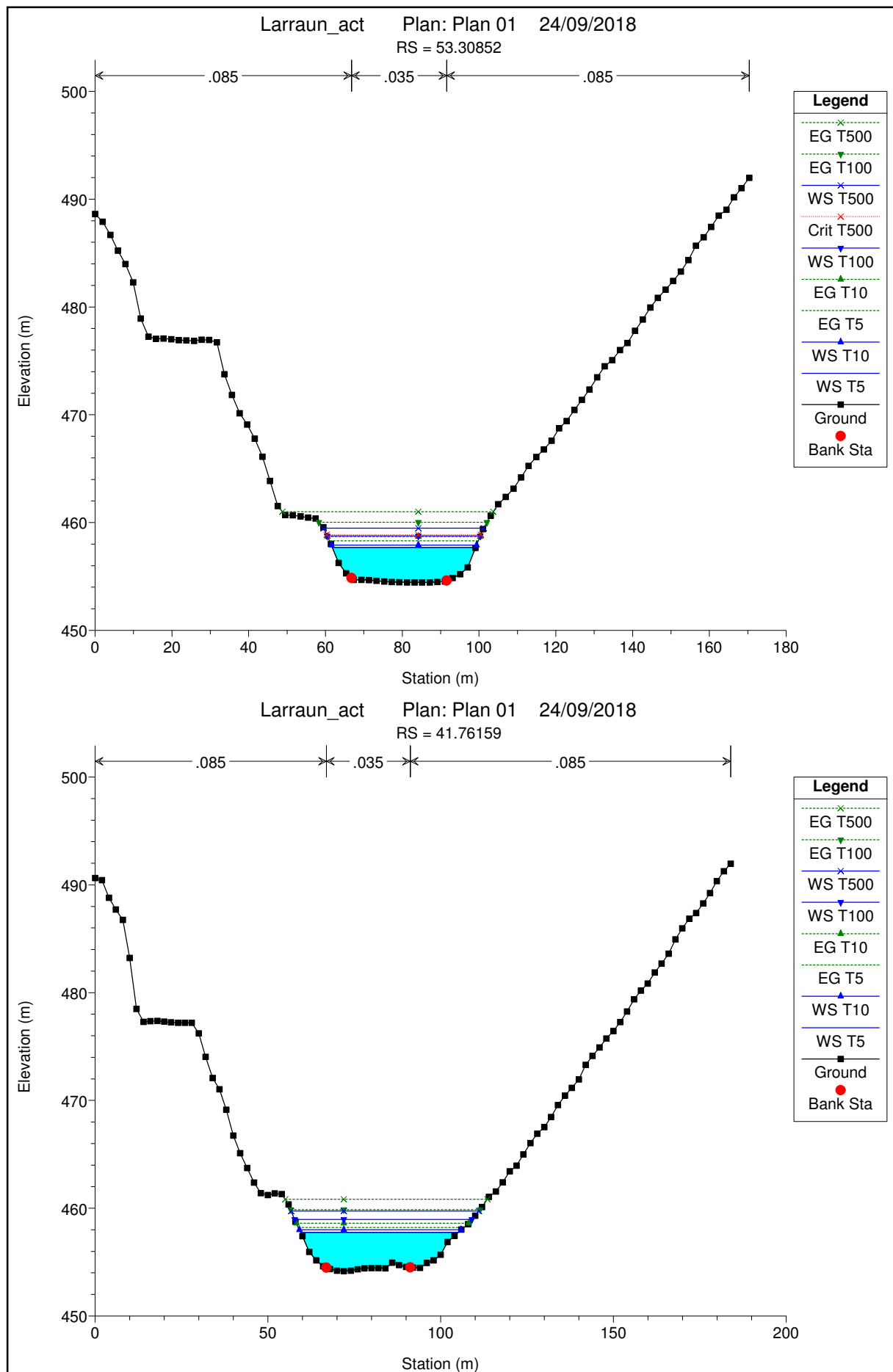


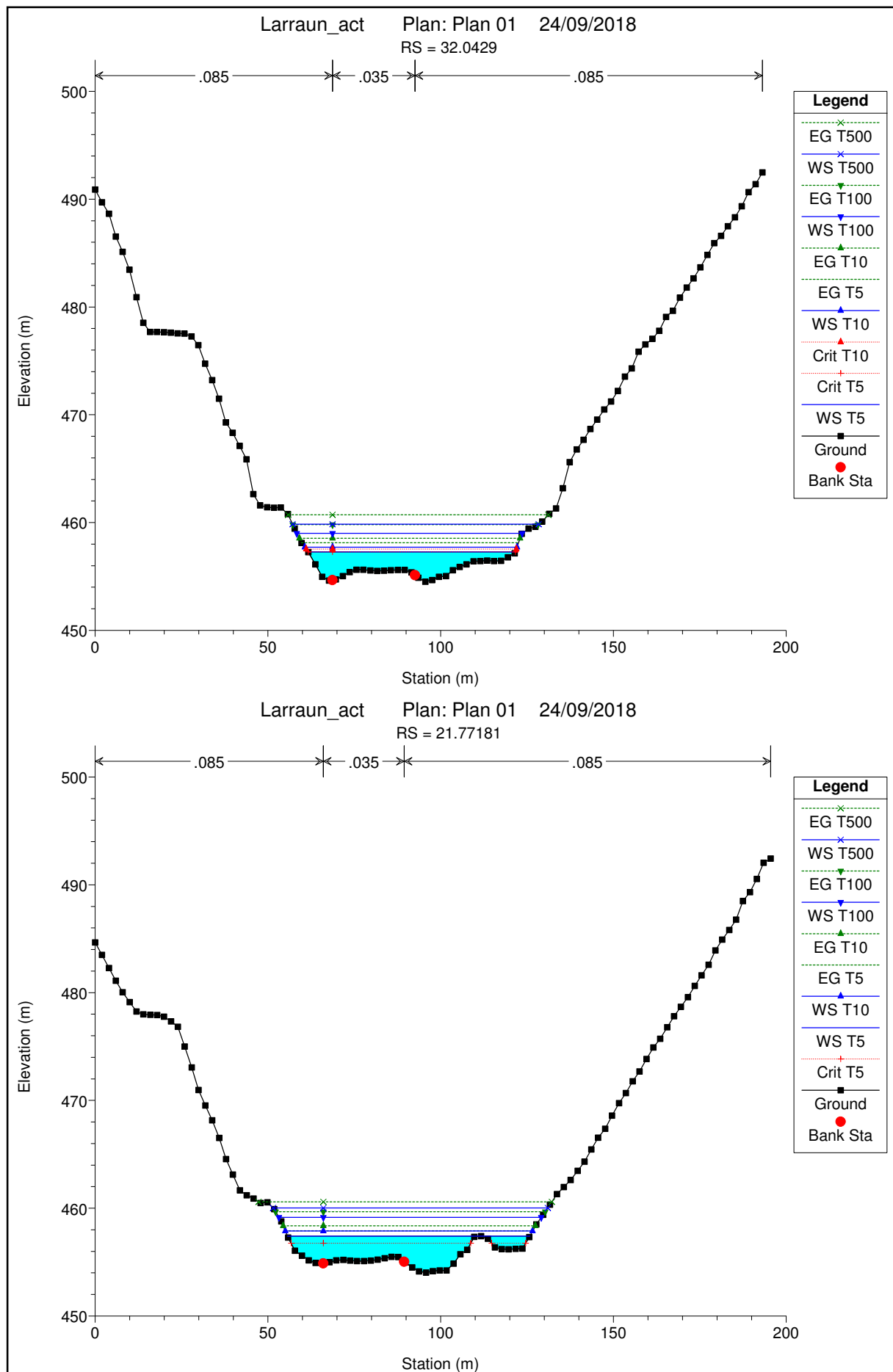


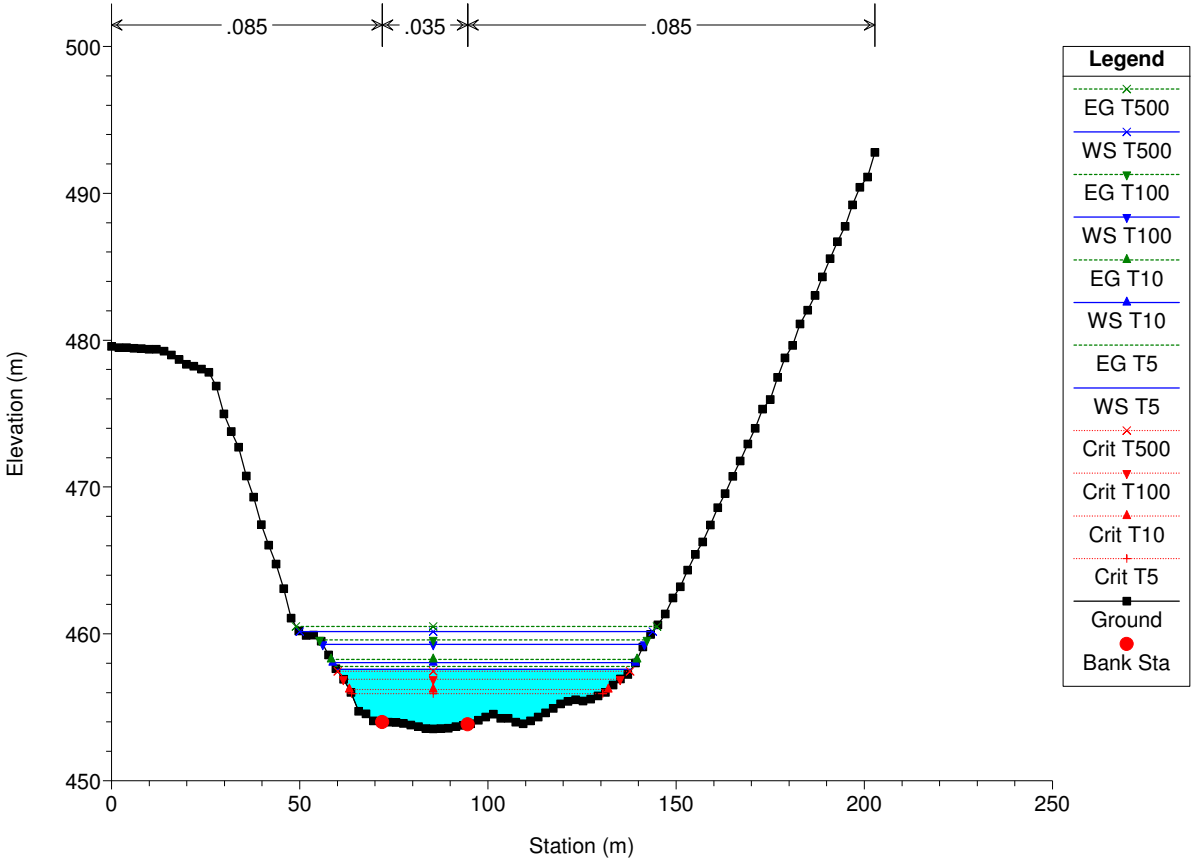












8.2. Situación futura

8.2.1. Listado de resultados

NUEVA PASARELA PEATONAL SOBRE EL RÍO BASABURUA

HEC-RAS Plan: Plan 01 River: Basaburua Reach: Pasarela1

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Pasarela1	627.0179	T5	126.00	531.03	533.48	533.57	534.01	0.007841	3.59	50.40	65.29	0.87
Pasarela1	627.0179	T10	154.00	531.03	533.62	533.70	534.18	0.007848	3.79	59.87	67.89	0.88
Pasarela1	627.0179	T100	248.00	531.03	534.03	534.09	534.69	0.007844	4.32	89.91	81.99	0.91
Pasarela1	627.0179	T500	320.00	531.03	534.37	534.35	534.98	0.006476	4.31	120.06	93.05	0.85
Pasarela1	610.6354	T5	126.00	530.68	533.42	532.83	533.69	0.002492	2.48	70.14	65.28	0.52
Pasarela1	610.6354	T10	154.00	530.68	533.62	533.11	533.91	0.002541	2.64	84.12	73.42	0.53
Pasarela1	610.6354	T100	248.00	530.68	534.17	533.75	534.49	0.002506	2.98	129.62	90.31	0.54
Pasarela1	610.6354	T500	320.00	530.68	534.48		534.83	0.002534	3.20	159.72	98.44	0.55
Pasarela1	594.8831	T5	126.00	530.58	533.20	533.02	533.62	0.005063	3.09	54.29	57.84	0.71
Pasarela1	594.8831	T10	154.00	530.58	533.45	533.28	533.85	0.004357	3.11	70.18	68.58	0.67
Pasarela1	594.8831	T100	248.00	530.58	534.07		534.44	0.003360	3.22	120.19	91.29	0.62
Pasarela1	594.8831	T500	320.00	530.58	534.43		534.79	0.002933	3.27	155.13	97.70	0.59
Pasarela1	581.0595	T5	126.00	530.57	533.26		533.52	0.002609	2.43	68.26	61.63	0.52
Pasarela1	581.0595	T10	154.00	530.57	533.49		533.76	0.002565	2.57	83.44	73.41	0.53
Pasarela1	581.0595	T100	248.00	530.57	534.08		534.37	0.002304	2.82	132.80	90.21	0.52
Pasarela1	581.0595	T500	320.00	530.57	534.42		534.74	0.002242	2.99	165.22	97.38	0.52
Pasarela1	566.3447	T5	126.00	530.34	533.14		533.47	0.003384	2.73	60.83	54.07	0.59
Pasarela1	566.3447	T10	154.00	530.34	533.34		533.71	0.003485	2.94	72.41	62.88	0.61
Pasarela1	566.3447	T100	248.00	530.34	533.90		534.32	0.003370	3.33	114.16	84.85	0.62
Pasarela1	566.3447	T500	320.00	530.34	534.27		534.69	0.003036	3.43	147.84	93.81	0.60
Pasarela1	551.0699	T5	126.00	529.91	533.13		533.41	0.002499	2.46	62.81	53.47	0.51
Pasarela1	551.0699	T10	154.00	529.91	533.32		533.66	0.002704	2.70	74.57	67.65	0.54
Pasarela1	551.0699	T100	248.00	529.91	533.90		534.26	0.002562	3.01	120.50	85.09	0.55
Pasarela1	551.0699	T500	320.00	529.91	534.26		534.64	0.002431	3.16	152.80	91.75	0.54
Pasarela1	535.095	T5	126.00	529.89	533.14	532.22	533.36	0.001967	2.08	63.20	43.43	0.45
Pasarela1	535.095	T10	154.00	529.89	533.33	532.43	533.60	0.002173	2.31	72.08	51.20	0.48
Pasarela1	535.095	T100	248.00	529.89	533.85	533.00	534.22	0.002461	2.81	110.32	77.69	0.53
Pasarela1	535.095	T500	320.00	529.89	534.16	533.66	534.59	0.002638	3.11	135.10	86.06	0.56
Pasarela1	523.7237	T5	126.00	529.97	533.08		533.33	0.002239	2.22	59.77	36.37	0.48
Pasarela1	523.7237	T10	154.00	529.97	533.24		533.56	0.002625	2.53	66.53	51.51	0.53
Pasarela1	523.7237	T100	248.00	529.97	533.70	533.07	534.17	0.003286	3.18	98.01	77.17	0.61
Pasarela1	523.7237	T500	320.00	529.97	533.94	533.71	534.53	0.003804	3.62	117.66	87.89	0.67
Pasarela1	510.5557	T5	126.00	529.80	533.10		533.29	0.001393	1.98	73.36	60.14	0.39
Pasarela1	510.5557	T10	154.00	529.80	533.28		533.51	0.001582	2.20	84.87	66.98	0.42
Pasarela1	510.5557	T100	248.00	529.80	533.75		534.10	0.002043	2.78	120.11	80.79	0.49
Pasarela1	510.5557	T500	320.00	529.80	534.02		534.44	0.002365	3.15	142.44	87.36	0.54
Pasarela1	496.2253	T5	126.00	529.90	532.98		533.26	0.002314	2.36	63.50	67.24	0.50
Pasarela1	496.2253	T10	154.00	529.90	533.16		533.47	0.002509	2.58	75.47	69.84	0.52
Pasarela1	496.2253	T100	248.00	529.90	533.64		534.06	0.002859	3.11	112.47	81.10	0.58
Pasarela1	496.2253	T500	320.00	529.90	533.90		534.39	0.003194	3.47	133.94	85.27	0.62
Pasarela1	481.1649	T5	126.00	529.96	532.93		533.22	0.002808	2.45	61.73	59.90	0.54
Pasarela1	481.1649	T10	154.00	529.96	533.09		533.43	0.003106	2.70	71.85	67.01	0.58
Pasarela1	481.1649	T100	248.00	529.96	533.52	533.22	534.00	0.003682	3.31	105.01	83.44	0.65
Pasarela1	481.1649	T500	320.00	529.96	533.78	533.60	534.33	0.003966	3.65	127.03	87.52	0.68
Pasarela1	469.1323	T5	126.00	529.91	532.91		533.18	0.002497	2.32	64.50	69.60	0.51
Pasarela1	469.1323	T10	154.00	529.91	533.07		533.38	0.002734	2.55	76.24	76.43	0.54
Pasarela1	469.1323	T100	248.00	529.91	533.53		533.93	0.003086	3.06	113.79	88.12	0.59
Pasarela1	469.1323	T500	320.00	529.91	533.78		534.25	0.003332	3.38	137.14	91.89	0.62
Pasarela1	457.3146	T5	126.00	529.92	532.95		533.13	0.001579	1.94	82.38	73.30	0.41
Pasarela1	457.3146	T10	154.00	529.92	533.12		533.32	0.001725	2.13	95.00	76.98	0.43
Pasarela1	457.3146	T100	248.00	529.92	533.57		533.86	0.002091	2.63	133.10	89.91	0.49
Pasarela1	457.3146	T500	320.00	529.92	533.83		534.18	0.002340	2.94	157.01	94.74	0.53
Pasarela1	443.1477	T5	126.00	530.14	532.83	532.53	533.09	0.003481	2.39	65.77	69.29	0.58
Pasarela1	443.1477	T10	154.00	530.14	532.99	532.69	533.28	0.003520	2.55	77.79	75.23	0.60
Pasarela1	443.1477	T100	248.00	530.14	533.49	533.10	533.82	0.003233	2.86	118.97	87.22	0.59
Pasarela1	443.1477	T500	320.00	530.14	533.75		534.13	0.003443	3.16	142.23	93.75	0.62
Pasarela1	426.4706	T5	126.00	530.45	532.49	532.49	532.98	0.007496	3.23	47.13	56.84	0.84
Pasarela1	426.4706	T10	154.00	530.45	532.67	532.67	533.18	0.007009	3.36	57.73	61.78	0.83
Pasarela1	426.4706	T100	248.00	530.45	533.14	533.14	533.73	0.006350	3.77	90.62	78.81	0.82
Pasarela1	426.4706	T500	320.00	530.45	533.52		534.06	0.005087	3.76	121.81	87.31	0.75
Pasarela1	409.0389	T5	126.00	529.71	531.95	532.20	532.78	0.014129	4.07	33.01	39.85	1.12
Pasarela1	409.0389	T10	154.00	529.71	532.16	532.39	533.00	0.012606	4.14	42.51	51.21	1.08
Pasarela1	409.0389	T100	248.00	529.71	533.17	532.81	533.59	0.003819	3.21	105.61	77.35	0.65
Pasarela1	409.0389	T500	320.00	529.71	533.53		533.96	0.003420	3.33	135.33	84.30	0.63
Pasarela1	391.7242	T5	126.00	529.46	532.02	532.02	532.59	0.006693	3.50	44.02	45.24	0.80
Pasarela1	391.7242	T10	154.00	529.46	532.22	532.22	532.82	0.006447	3.66	53.52	47.94	0.80
Pasarela1	391.7242	T100	248.00	529.46	532.73	532.73	533.48	0.006538	4.25	80.80	61.00	0.84
Pasarela1	391.7242	T500	320.00	529.46	533.12	533.12	533.86	0.005790	4.39	106.92	72.53	0.81
Pasarela1	376.7623	T5	126.00	529.80	532.10	531.79	532.43	0.004008	2.69	56.61	47.59	0.63
Pasarela1	376.7623	T10	154.00	529.80	532.26	532.00	532.65	0.004304	2.94	64.28	49.33	0.66
Pasarela1	376.7623	T100	248.00	529.80	532.64	532.39	533.26	0.005717	3.80	85.64	63.29	0.78

HEC-RAS Plan: Plan 01 River: Basaburua Reach: Pasarela1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Pasarela1	376.7623	T500	320.00	529.80	532.56	532.80	533.70	0.010996	5.14	80.35	59.89	1.07
Pasarela1	358.2802	T5	126.00	529.99	531.81	531.81	532.31	0.008482	3.37	45.76	45.98	0.88
Pasarela1	358.2802	T10	154.00	529.99	531.97	531.97	532.53	0.008510	3.59	53.18	47.75	0.89
Pasarela1	358.2802	T100	248.00	529.99	532.50	532.50	533.15	0.007557	3.99	82.64	63.75	0.87
Pasarela1	358.2802	T500	320.00	529.99	532.74	532.74	533.50	0.008097	4.40	98.43	68.55	0.91
Pasarela1	341.0469	T5	126.00	529.18	531.64	531.16	531.94	0.003308	2.54	58.95	47.22	0.58
Pasarela1	341.0469	T10	154.00	529.18	531.84	531.38	532.18	0.003463	2.75	69.03	53.80	0.60
Pasarela1	341.0469	T100	248.00	529.18	532.37	532.00	532.80	0.003618	3.19	100.89	62.98	0.63
Pasarela1	341.0469	T500	320.00	529.18	532.70	532.30	533.19	0.003742	3.47	122.98	69.99	0.65
Pasarela1	327.1814	T5	126.00	529.01	531.23	531.23	531.84	0.008759	3.58	40.59	39.32	0.91
Pasarela1	327.1814	T10	154.00	529.01	531.45	531.45	532.08	0.008038	3.69	49.95	44.68	0.88
Pasarela1	327.1814	T100	248.00	529.01	532.02	532.02	532.71	0.006788	4.04	80.12	59.09	0.85
Pasarela1	327.1814	T500	320.00	529.01	532.25	532.25	533.09	0.007433	4.51	94.51	62.78	0.90
Pasarela1	307.5106	T5	126.00	529.06	530.73	530.94	531.59	0.016184	4.14	32.05	33.02	1.19
Pasarela1	307.5106	T10	154.00	529.06	530.92	531.15	531.85	0.015120	4.34	38.28	36.62	1.17
Pasarela1	307.5106	T100	248.00	529.06	531.47	531.74	532.51	0.012015	4.70	62.96	57.61	1.10
Pasarela1	307.5106	T500	320.00	529.06	531.71	532.01	532.88	0.012310	5.10	77.05	59.83	1.13
Pasarela1	293.7244	T5	126.00	528.57	530.69	529.96	530.89	0.002221	2.00	65.77	43.49	0.47
Pasarela1	293.7244	T10	154.00	528.57	530.89	530.13	531.13	0.002335	2.19	74.80	46.55	0.49
Pasarela1	293.7244	T100	248.00	528.57	531.49	530.65	531.81	0.002439	2.61	107.22	59.90	0.52
Pasarela1	293.7244	T500	320.00	528.57	531.92	530.98	532.28	0.002254	2.77	134.06	63.70	0.51
Pasarela1	279.7701	T5	126.00	528.50	530.66		530.86	0.002195	1.98	65.21	41.44	0.47
Pasarela1	279.7701	T10	154.00	528.50	530.86		531.10	0.002301	2.17	73.66	43.98	0.49
Pasarela1	279.7701	T100	248.00	528.50	531.43		531.78	0.002498	2.66	99.68	47.79	0.53
Pasarela1	279.7701	T500	320.00	528.50	531.81		532.24	0.002522	2.94	118.74	50.30	0.54
Pasarela1	262.8788	T5	126.00	528.38	530.46		530.80	0.004382	2.64	52.43	39.35	0.65
Pasarela1	262.8788	T10	154.00	528.38	530.63		531.03	0.004605	2.89	59.19	40.51	0.68
Pasarela1	262.8788	T100	248.00	528.38	531.10		531.69	0.005172	3.56	79.08	43.68	0.75
Pasarela1	262.8788	T500	320.00	528.38	531.44		532.15	0.005206	3.92	94.38	46.34	0.77
Pasarela1	250.8258	T5	126.00	528.54	530.41		530.69	0.006357	2.69	54.70	41.92	0.75
Pasarela1	250.8258	T10	154.00	528.54	530.59		530.91	0.006407	2.89	62.30	43.16	0.76
Pasarela1	250.8258	T100	248.00	528.54	531.10		531.55	0.006470	3.44	85.25	47.82	0.80
Pasarela1	250.8258	T500	320.00	528.54	531.47		531.99	0.006056	3.75	103.95	52.32	0.79
Pasarela1	236.6296	T5	126.00	528.13	529.99	529.99	530.53	0.009504	3.40	41.63	38.17	0.93
Pasarela1	236.6296	T10	154.00	528.13	530.17	530.17	530.76	0.009061	3.58	50.42	47.14	0.92
Pasarela1	236.6296	T100	248.00	528.13	530.79	530.62	531.42	0.006536	3.81	81.58	53.80	0.83
Pasarela1	236.6296	T500	320.00	528.13	531.27	530.94	531.89	0.005021	3.83	109.10	59.32	0.75
Pasarela1	221.6618	T5	126.00	527.74	529.59	529.73	530.34	0.012812	3.96	35.57	34.76	1.08
Pasarela1	221.6618	T10	154.00	527.74	529.80	529.92	530.58	0.011528	4.08	43.00	36.87	1.04
Pasarela1	221.6618	T100	248.00	527.74	530.75	530.44	531.31	0.004919	3.61	86.04	56.92	0.73
Pasarela1	221.6618	T500	320.00	527.74	531.28		531.79	0.003615	3.52	120.83	69.71	0.65
Pasarela1	205.3876	T5	126.00	526.50	529.87	529.03	530.09	0.002227	2.08	64.11	39.24	0.47
Pasarela1	205.3876	T10	154.00	526.50	530.10	529.24	530.35	0.002281	2.25	73.96	45.48	0.49
Pasarela1	205.3876	T100	248.00	526.50	530.89	529.83	531.18	0.001883	2.51	116.29	64.51	0.47
Pasarela1	205.3876	T500	320.00	526.50	531.37	530.24	531.69	0.001722	2.66	150.40	76.49	0.46
Pasarela1	200.3876		Bridge									
Pasarela1	191.2041	T5	126.00	526.19	529.85		530.04	0.001385	2.01	74.66	47.53	0.39
Pasarela1	191.2041	T10	154.00	526.19	530.04		530.27	0.001579	2.24	83.97	52.25	0.42
Pasarela1	191.2041	T100	248.00	526.19	530.56		530.91	0.002029	2.84	115.56	67.17	0.49
Pasarela1	191.2041	T500	320.00	526.19	530.88		531.31	0.002271	3.19	138.31	74.90	0.53
Pasarela1	178.9972	T5	126.00	527.34	529.44	529.44	529.97	0.008287	3.46	44.42	44.01	0.89
Pasarela1	178.9972	T10	154.00	527.34	529.60	529.60	530.20	0.008198	3.69	52.05	46.72	0.90
Pasarela1	178.9972	T100	248.00	527.34	530.10	530.10	530.83	0.007650	4.22	77.75	57.07	0.90
Pasarela1	178.9972	T500	320.00	527.34	530.42	530.42	531.22	0.007383	4.53	96.82	64.52	0.91
Pasarela1	165.5926	T5	126.00	527.22	529.34	529.33	529.82	0.008537	3.39	47.56	50.70	0.89
Pasarela1	165.5926	T10	154.00	527.22	529.36	529.48	530.05	0.012027	4.07	48.65	51.15	1.06
Pasarela1	165.5926	T100	248.00	527.22	529.69	529.93	530.67	0.013745	4.96	66.74	58.28	1.17
Pasarela1	165.5926	T500	320.00	527.22	529.90	530.20	531.05	0.014362	5.46	79.61	62.24	1.22
Pasarela1	150.8167	T5	126.00	526.91	529.38		529.67	0.004440	2.78	63.19	59.61	0.66
Pasarela1	150.8167	T10	154.00	526.91	529.50	529.29	529.85	0.005036	3.09	70.24	62.26	0.71
Pasarela1	150.8167	T100	248.00	526.91	529.84	529.71	530.36	0.006246	3.84	92.90	68.77	0.82
Pasarela1	150.8167	T500	320.00	526.91	529.64	529.93	530.81	0.015637	5.72	79.65	65.19	1.27
Pasarela1	137.549	T5	126.00	527.08	529.26		529.58	0.006967	3.07	58.87	64.11	0.80
Pasarela1	137.549	T10	154.00	527.08	529.38	529.29	529.75	0.007280	3.31	67.07	66.79	0.83
Pasarela1	137.549	T100	248.00	527.08	529.75	529.64	530.24	0.007795	3.92	93.08	76.83	0.89
Pasarela1	137.549	T500	320.00	527.08	529.97	529.89	530.55	0.008193	4.31	110.60	83.17	0.93
Pasarela1	124.4547	T5	126.00	527.46	529.14	529.01	529.41	0.008594	2.76	59.59	71.10	0.85
Pasarela1	124.4547	T10	154.00	527.46	529.29	529.13	529.58	0.007978	2.89	69.98	74.13	0.84
Pasarela1	124.4547	T100	248.00	527.46	529.69	529.46	530.05	0.006989	3.28	102.12	85.01	0.82
Pasarela1	124.4547	T500	320.00	527.46	529.93	529.68	530.35	0.007027	3.60	122.78	93.38	0.84

HEC-RAS Plan: Plan 01 River: Basaburua Reach: Pasarela1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m ³ /s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m ²)	(m)	
Pasarela1	110.1663	T5	126.00	527.04	528.83	528.83	529.23	0.009390	3.25	52.77	64.89	0.91
Pasarela1	110.1663	T10	154.00	527.04	528.95	528.95	529.40	0.009524	3.47	60.73	67.45	0.93
Pasarela1	110.1663	T100	248.00	527.04	529.32	529.32	529.88	0.009157	3.99	88.03	79.04	0.95
Pasarela1	110.1663	T500	320.00	527.04	529.56	529.56	530.18	0.008956	4.28	107.08	85.73	0.96
Pasarela1	94.65714	T5	126.00	526.75	528.77	528.57	529.02	0.004701	2.65	66.51	67.27	0.67
Pasarela1	94.65714	T10	154.00	526.75	528.90	528.69	529.19	0.004932	2.86	75.60	69.61	0.69
Pasarela1	94.65714	T100	248.00	526.75	529.32	529.04	529.69	0.004989	3.32	106.59	78.65	0.72
Pasarela1	94.65714	T500	320.00	526.75	529.56	529.28	530.00	0.005193	3.64	126.47	84.23	0.75
Pasarela1	77.06392	T5	126.00	526.65	528.77		528.91	0.002962	2.05	82.89	71.85	0.53
Pasarela1	77.06392	T10	154.00	526.65	528.91		529.08	0.003189	2.25	92.62	73.94	0.56
Pasarela1	77.06392	T100	248.00	526.65	529.33		529.57	0.003446	2.72	125.74	82.10	0.60
Pasarela1	77.06392	T500	320.00	526.65	529.58		529.87	0.003666	3.02	146.49	85.77	0.63
Pasarela1	60.04271	T5	126.00	527.84	528.65		528.83	0.008028	1.84	66.03	76.11	0.75
Pasarela1	60.04271	T10	154.00	527.84	528.79		528.99	0.007452	2.04	76.92	78.03	0.75
Pasarela1	60.04271	T100	248.00	527.84	529.26		529.49	0.005650	2.45	116.32	87.49	0.71
Pasarela1	60.04271	T500	320.00	527.84	529.51		529.79	0.005423	2.72	138.88	90.46	0.72
Pasarela1	43.05642	T5	126.00	526.59	528.54		528.69	0.003659	2.17	81.95	81.58	0.58
Pasarela1	43.05642	T10	154.00	526.59	528.69		528.86	0.003568	2.29	94.19	82.83	0.58
Pasarela1	43.05642	T100	248.00	526.59	529.17		529.38	0.003292	2.62	136.10	95.26	0.58
Pasarela1	43.05642	T500	320.00	526.59	529.43		529.68	0.003455	2.90	161.00	102.19	0.61
Pasarela1	25.15587	T5	126.00	526.27	528.42	528.20	528.61	0.003979	2.43	76.16	76.01	0.61
Pasarela1	25.15587	T10	154.00	526.27	528.57	528.31	528.78	0.003951	2.55	87.69	77.08	0.61
Pasarela1	25.15587	T100	248.00	526.27	529.02	528.60	529.29	0.004501	3.08	129.03	111.87	0.67
Pasarela1	25.15587	T500	320.00	526.27	529.35	528.79	529.60	0.003508	2.94	167.22	113.50	0.60
Pasarela1	9.809587	T5	126.00	526.12	528.30	528.16	528.56	0.004492	2.72	69.26	70.65	0.65
Pasarela1	9.809587	T10	154.00	526.12	528.45	528.28	528.72	0.004495	2.84	80.07	71.47	0.65
Pasarela1	9.809587	T100	248.00	526.12	528.92	528.57	529.24	0.004491	3.19	115.18	81.90	0.67
Pasarela1	9.809587	T500	320.00	526.12	529.22	528.75	529.55	0.004498	3.39	151.25	111.79	0.68

NUEVA PASARELA PEATONAL SOBRE EL RÍO LARRAUN

HEC-RAS Plan:

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Hydr Depth (m)	Flow Area (m2)	Top Width (m)	Froude # Chl
Larraun	593.1615	T5	305.00	456.13	461.20	459.95	461.71	0.003102	3.24	2.46	111.09	45.08	0.52
Larraun	593.1615	T10	375.00	456.13	461.65	460.40	462.23	0.003097	3.49	2.76	132.57	48.02	0.53
Larraun	593.1615	T100	604.00	456.13	462.87	461.53	463.65	0.003147	4.14	3.56	196.30	55.19	0.56
Larraun	593.1615	T500	784.00	456.13	463.77	462.23	464.63	0.002990	4.46	4.24	247.05	58.24	0.56
Larraun	581.5397	T5	305.00	456.73	460.29	460.29	461.57	0.010777	5.06	1.92	67.46	35.20	0.95
Larraun	581.5397	T10	375.00	456.73	460.77	460.77	462.10	0.009390	5.23	2.19	85.41	39.04	0.91
Larraun	581.5397	T100	604.00	456.73	462.00	461.85	463.52	0.007495	5.75	2.95	139.88	47.36	0.86
Larraun	581.5397	T500	784.00	456.73	463.07	462.54	464.53	0.005702	5.77	3.66	193.51	52.94	0.77
Larraun	567.6717	T5	305.00	456.12	460.27	460.02	461.29	0.007311	4.64	2.12	82.51	38.95	0.81
Larraun	567.6717	T10	375.00	456.12	460.74	460.42	461.83	0.006778	4.87	2.46	101.12	41.04	0.80
Larraun	567.6717	T100	604.00	456.12	462.07	461.41	463.37	0.005680	5.46	3.17	161.10	50.75	0.77
Larraun	567.6717	T500	784.00	456.12	463.14		464.40	0.004513	5.52	3.97	217.86	54.92	0.71
Larraun	550.8625	T5	305.00	455.92	460.38		461.10	0.004393	4.05	2.55	105.76	41.49	0.66
Larraun	550.8625	T10	375.00	455.92	460.85		461.65	0.004281	4.31	2.92	125.70	43.02	0.66
Larraun	550.8625	T100	604.00	455.92	462.19		463.20	0.004018	4.99	3.88	186.22	48.04	0.67
Larraun	550.8625	T500	784.00	455.92	463.15		464.30	0.003798	5.39	4.23	235.92	55.82	0.67
Larraun	534.7523	T5	305.00	456.36	460.31		461.03	0.005148	4.28	2.62	112.34	42.81	0.71
Larraun	534.7523	T10	375.00	456.36	460.80		461.58	0.004813	4.50	3.06	133.64	43.63	0.70
Larraun	534.7523	T100	604.00	456.36	462.15		463.13	0.004417	5.19	4.13	194.15	47.04	0.70
Larraun	534.7523	T500	784.00	456.36	463.13		464.23	0.004096	5.56	4.80	241.67	50.38	0.70
Larraun	519.3437	T5	305.00	456.37	460.27		460.94	0.005202	4.16	2.74	111.28	40.60	0.71
Larraun	519.3437	T10	375.00	456.37	460.76		461.50	0.004887	4.40	3.14	131.53	41.91	0.70
Larraun	519.3437	T100	604.00	456.37	462.11		463.06	0.004497	5.11	4.08	190.91	46.80	0.70
Larraun	519.3437	T500	784.00	456.37	463.10		464.16	0.004083	5.45	4.74	239.16	50.49	0.69
Larraun	503.7959	T5	305.00	455.13	460.38		460.81	0.003145	3.37	3.51	132.23	37.64	0.53
Larraun	503.7959	T10	375.00	455.13	460.88		461.37	0.003300	3.63	3.89	151.08	38.88	0.54
Larraun	503.7959	T100	604.00	455.13	462.23		462.94	0.003450	4.40	4.81	206.22	42.83	0.58
Larraun	503.7959	T500	784.00	455.13	463.21		464.04	0.003369	4.81	5.45	249.56	45.77	0.59
Larraun	486.8042	T5	305.00	454.99	460.41		460.75	0.001548	2.93	3.55	160.52	45.20	0.41
Larraun	486.8042	T10	375.00	454.99	460.90		461.31	0.001647	3.21	3.95	183.02	46.33	0.43
Larraun	486.8042	T100	604.00	454.99	462.26		462.87	0.001901	3.98	4.85	248.90	51.32	0.48
Larraun	486.8042	T500	784.00	454.99	463.25		463.97	0.001947	4.40	5.44	301.80	55.50	0.50
Larraun	471.2756	T5	305.00	454.93	460.40		460.72	0.001490	2.86	3.40	170.66	50.20	0.40
Larraun	471.2756	T10	375.00	454.93	460.90		461.27	0.001575	3.13	3.73	196.12	52.55	0.42
Larraun	471.2756	T100	604.00	454.93	462.29		462.82	0.001736	3.80	4.60	273.76	59.55	0.46
Larraun	471.2756	T500	784.00	454.93	463.30		463.91	0.001710	4.13	5.33	336.23	63.10	0.46
Larraun	451.8847	T5	305.00	454.83	460.41		460.69	0.001338	2.73	3.54	184.45	52.05	0.38
Larraun	451.8847	T10	375.00	454.83	460.91		461.23	0.001410	2.98	3.95	210.78	53.30	0.40
Larraun	451.8847	T100	604.00	454.83	462.29		462.77	0.001617	3.69	4.75	288.50	60.68	0.44
Larraun	451.8847	T500	784.00	454.83	463.31		463.86	0.001604	4.02	5.48	352.48	64.38	0.45
Larraun	434.1268	T5	305.00	455.08	460.22		460.64	0.002177	3.25	3.05	144.17	47.31	0.48
Larraun	434.1268	T10	375.00	455.08	460.69		461.19	0.002262	3.53	3.46	167.00	48.29	0.49
Larraun	434.1268	T100	604.00	455.08	462.02		462.72	0.002477	4.30	4.40	233.76	53.16	0.54
Larraun	434.1268	T500	784.00	455.08	462.91		463.80	0.002705	4.89	4.36	285.51	65.53	0.57
Larraun	419.8611	T5	305.00	455.41	459.84		460.57	0.004363	4.08	2.55	103.69	40.68	0.65
Larraun	419.8611	T10	375.00	455.41	460.26		461.11	0.004550	4.45	2.88	120.96	42.04	0.67
Larraun	419.8611	T100	604.00	455.41	461.44		462.62	0.004891	5.39	3.67	173.26	47.19	0.72
Larraun	419.8611	T500	784.00	455.41	462.15	461.30	463.68	0.005487	6.17	3.54	210.99	59.67	0.78
Larraun	406.9335	T5	305.00	455.28	459.82	458.80	460.50	0.003766	3.94	2.54	110.52	43.50	0.61
Larraun	406.9335	T10	375.00	455.28	460.25	459.38	461.03	0.003924	4.29	2.88	129.19	44.81	0.64
Larraun	406.9335	T100	604.00	455.28	461.42		462.55	0.004380	5.26	3.13	189.79	60.66	0.70
Larraun	406.9335	T500	784.00	455.28	462.34		463.51	0.003945	5.51	3.66	249.43	68.16	0.68
Larraun	390.933	T5	305.00	455.78	459.13	459.13	460.36	0.009175	5.12	1.99	76.36	38.45	0.92
Larraun	390.933	T10	375.00	455.78	459.55	459.55	460.89	0.008657	5.40	2.26	93.17	41.21	0.91
Larraun	390.933	T100	604.00	455.78	461.30		462.47	0.004885	5.29	3.06	178.95	58.41	0.73
Larraun	390.933	T500	784.00	455.78	462.28		463.44	0.004079	5.42	3.79	239.56	63.23	0.69
Larraun	374.2402	T5	305.00	455.06	459.38	458.39	460.02	0.003607	3.69	2.70	104.84	38.89	0.60
Larraun	374.2402	T10	375.00	455.06	459.90	458.81	460.60	0.003444	3.92	3.06	125.55	41.08	0.59
Larraun	374.2402	T100	604.00	455.06	461.47		462.31	0.002883	4.39	4.15	194.60	46.84	0.57
Larraun	374.2402	T500	784.00	455.06	462.30		463.35	0.003079	4.95	3.98	236.73	59.42	0.60
Larraun	360.0932	T5	305.00	455.14	459.05		459.93	0.005366	4.28	2.32	88.47	38.15	0.72
Larraun	360.0932	T10	375.00	455.14	459.60		460.52	0.004799	4.44	2.74	109.83	40.07	0.70
Larraun	360.0932	T100	604.00	455.14	461.25		462.25	0.003535	4.77	3.95	180.40	45.67	0.63
Larraun	360.0932	T500	784.00	455.14	462.09		463.29	0.003636	5.29	3.94	222.22	56.38	0.66
Larraun	345.8105	T5	305.00	454.93	458.99		459.85	0.005410	4.32	2.45	92.88	37.87	0.72
Larraun	345.8105	T10	375.00	454.93	459.56		460.44	0.004750	4.46	2.90	114.78	39.63	0.69
Larraun	345.8105	T100	604.00	454.93	461.23		462.19	0.003509	4.78	4.05	185.90	45.89	0.63
Larraun	345.8105	T500	784.00	454.93	462.08		463.22	0.003559	5.27	4.39	227.76	51.92	0.65
Larraun	332.8076	T5	305.00	455.17	459.00		459.75	0.004982	4.20	2.47	106.36	43.00	0.70
Larraun	332.8076	T10	375.00	455.17	459.59		460.34	0.004235	4.28	2.93	132.51	45.17	0.66
Larraun	332.8076	T100	604.00	455.17	461.30		462.09	0.003043	4.54	4.15	215.19	51.83	0.59
Larraun	332.8076	T500	784.00	455.17	462.19		463.11	0.003029	4.97	4.71	263.11	55.91	0.60
Larraun	316.8681	T5	305.00	455.05	459.08		459.62	0.003723	3.71	2.81	127.10	45.25	0.61

HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Hydr Depth (m)	Flow Area (m2)	Top Width (m)	Froude # Chl
Larraun	316.8681	T10	375.00	455.05	459.67		460.23	0.003287	3.84	3.25	154.26	47.51	0.58
Larraun	316.8681	T100	604.00	455.05	461.38		462.00	0.002494	4.16	4.39	242.33	55.17	0.54
Larraun	316.8681	T500	784.00	455.05	462.28		463.01	0.002496	4.56	5.00	293.94	58.84	0.55
Larraun	304.6726	T5	305.00	454.48	459.17		459.54	0.002177	3.07	3.16	154.36	48.91	0.47
Larraun	304.6726	T10	375.00	454.48	459.76		460.15	0.002035	3.23	3.65	183.38	50.23	0.46
Larraun	304.6726	T100	604.00	454.48	461.46		461.93	0.001739	3.63	5.05	271.82	53.83	0.45
Larraun	304.6726	T500	784.00	454.48	462.36		462.94	0.001831	4.06	5.71	321.71	56.30	0.47
Larraun	290.2381	T5	305.00	454.44	459.09		459.50	0.002379	3.26	3.30	146.64	44.40	0.49
Larraun	290.2381	T10	375.00	454.44	459.67		460.12	0.002269	3.46	3.80	172.44	45.37	0.49
Larraun	290.2381	T100	604.00	454.44	461.34		461.90	0.002020	3.95	5.21	250.49	48.08	0.49
Larraun	290.2381	T500	784.00	454.44	462.21		462.91	0.002172	4.44	5.93	292.94	49.38	0.52
Larraun	276.222	T5	305.00	453.93	459.11		459.46	0.001926	2.97	3.79	149.01	39.32	0.44
Larraun	276.222	T10	375.00	453.93	459.67		460.08	0.001932	3.21	4.25	171.56	40.34	0.45
Larraun	276.222	T100	604.00	453.93	461.32		461.87	0.001893	3.81	5.57	240.06	43.12	0.46
Larraun	276.222	T500	784.00	453.93	462.16		462.88	0.002119	4.36	6.18	277.24	44.87	0.50
Larraun	265.6064	T5	305.00	453.64	459.11	456.94	459.43	0.001505	2.79	4.03	153.70	38.13	0.40
Larraun	265.6064	T10	375.00	453.64	459.67	457.31	460.05	0.001558	3.04	4.48	175.46	39.15	0.41
Larraun	265.6064	T100	604.00	453.64	461.31	458.39	461.85	0.001619	3.68	5.74	242.09	42.15	0.44
Larraun	265.6064	T500	784.00	453.64	462.15	459.09	462.85	0.001839	4.22	6.40	278.19	43.50	0.47
Larraun	258.1064	Bridge											
Larraun	252.573	T5	305.00	453.99	458.43		459.32	0.006846	4.55	3.07	87.23	28.44	0.77
Larraun	252.573	T10	375.00	453.99	458.84		459.90	0.007382	4.96	3.26	99.53	30.49	0.81
Larraun	252.573	T100	604.00	453.99	460.24		461.56	0.006700	5.63	4.19	145.20	34.67	0.80
Larraun	252.573	T500	784.00	453.99	460.91	460.23	462.59	0.007305	6.39	4.65	168.92	36.33	0.85
Larraun	240.252	T5	305.00	454.17	458.45		459.21	0.004244	4.07	3.23	93.98	29.13	0.65
Larraun	240.252	T10	375.00	454.17	458.85		459.79	0.004592	4.52	3.43	106.04	30.93	0.69
Larraun	240.252	T100	604.00	454.17	460.17		461.49	0.004656	5.42	4.11	151.45	36.82	0.72
Larraun	240.252	T500	784.00	454.17	460.74	460.06	462.50	0.005555	6.31	4.49	172.86	38.52	0.80
Larraun	226.14	T5	305.00	454.00	458.39		459.15	0.004459	4.35	3.13	105.48	33.67	0.68
Larraun	226.14	T10	375.00	454.00	458.79		459.72	0.004865	4.82	3.34	119.39	35.71	0.72
Larraun	226.14	T100	604.00	454.00	460.14		461.41	0.004872	5.73	4.12	172.16	41.76	0.75
Larraun	226.14	T500	784.00	454.00	460.73	460.03	462.39	0.005736	6.62	4.51	197.46	43.82	0.83
Larraun	214.1848	T5	305.00	453.85	458.41		459.07	0.003886	4.21	3.48	116.62	33.48	0.64
Larraun	214.1848	T10	375.00	453.85	458.83		459.63	0.004277	4.68	3.56	130.81	36.75	0.68
Larraun	214.1848	T100	604.00	453.85	460.15		461.32	0.004660	5.74	4.25	185.77	43.71	0.74
Larraun	214.1848	T500	784.00	453.85	460.76		462.28	0.005463	6.62	4.68	212.95	45.49	0.81
Larraun	198.3614	T5	305.00	454.24	458.15		458.97	0.007616	4.98	3.14	100.53	32.03	0.85
Larraun	198.3614	T10	375.00	454.24	458.49		459.51	0.008488	5.59	3.17	111.46	35.11	0.92
Larraun	198.3614	T100	604.00	454.24	459.44	458.74	461.16	0.010667	7.28	3.29	152.38	46.29	1.07
Larraun	198.3614	T500	784.00	454.24	460.25	460.07	462.13	0.009868	7.77	3.92	190.43	48.57	1.05
Larraun	188.4099	T5	305.00	453.95	458.18		458.87	0.004958	4.53	3.36	113.99	33.93	0.71
Larraun	188.4099	T10	375.00	453.95	458.53		459.40	0.005675	5.11	3.57	125.93	35.25	0.77
Larraun	188.4099	T100	604.00	453.95	459.56	458.52	460.99	0.007185	6.61	3.64	171.81	47.22	0.90
Larraun	188.4099	T500	784.00	453.95	460.35	459.90	461.97	0.007097	7.18	4.25	209.91	49.36	0.91
Larraun	176.0865	T5	305.00	454.05	458.11		458.81	0.005032	4.49	2.83	115.15	40.67	0.71
Larraun	176.0865	T10	375.00	454.05	458.48		459.33	0.005544	5.00	2.96	130.48	44.10	0.76
Larraun	176.0865	T100	604.00	454.05	459.64		460.84	0.006013	6.08	3.65	187.76	51.49	0.82
Larraun	176.0865	T500	784.00	454.05	460.48		461.81	0.005737	6.53	4.31	232.07	53.83	0.82
Larraun	166.4144	T5	305.00	453.92	458.21		458.71	0.003450	3.84	3.11	133.64	42.91	0.60
Larraun	166.4144	T10	375.00	453.92	458.59		459.21	0.003847	4.29	3.20	150.67	47.10	0.64
Larraun	166.4144	T100	604.00	453.92	459.78		460.71	0.004363	5.33	3.90	212.23	54.46	0.71
Larraun	166.4144	T500	784.00	453.92	460.62		461.68	0.004281	5.78	4.51	259.49	57.48	0.72
Larraun	154.6094	T5	305.00	454.10	458.14		458.67	0.003855	3.86	3.16	128.28	40.54	0.62
Larraun	154.6094	T10	375.00	454.10	458.52		459.17	0.004184	4.28	3.44	144.08	41.87	0.66
Larraun	154.6094	T100	604.00	454.10	459.67		460.65	0.004790	5.36	3.72	202.71	54.50	0.73
Larraun	154.6094	T500	784.00	454.10	460.55		461.62	0.004480	5.72	4.40	251.67	57.19	0.73
Larraun	143.2528	T5	305.00	453.83	458.19		458.59	0.002876	3.38	3.25	147.30	45.32	0.54
Larraun	143.2528	T10	375.00	453.83	458.59		459.08	0.003085	3.73	3.57	165.78	46.50	0.57
Larraun	143.2528	T100	604.00	453.83	459.80		460.53	0.003461	4.64	4.05	229.39	56.60	0.63
Larraun	143.2528	T500	784.00	453.83	460.67		461.51	0.003379	5.05	4.67	280.15	60.05	0.63
Larraun	134.4118	T5	305.00	453.75	458.16		458.56	0.002922	3.36	3.09	147.03	47.51	0.54
Larraun	134.4118	T10	375.00	453.75	458.56		459.05	0.003090	3.69	3.41	166.63	48.92	0.57
Larraun	134.4118	T100	604.00	453.75	459.79		460.48	0.003314	4.51	3.97	234.60	59.10	0.61
Larraun	134.4118	T500	784.00	453.75	460.67		461.46	0.003189	4.88	4.60	288.16	62.71	0.61
Larraun	122.1287	T5	305.00	454.11	458.12		458.53	0.003044	3.33	3.06	143.38	46.87	0.55
Larraun	122.1287	T10	375.00	454.11	458.52		459.01	0.003212	3.66	3.35	162.52	48.49	0.57
Larraun	122.1287	T100	604.00	454.11	459.75		460.45	0.003360	4.45	3.98	228.75	57.43	0.61
Larraun	122.1287	T500	784.00	454.11	460.63		461.42	0.003196	4.80	4.68	280.57	59.93	0.61
Larraun	110.8731	T5	305.00	454.02	458.12		458.48	0.002723	3.13	3.20	147.55	46.04	0.52
Larraun	110.8731	T10	375.00	454.02	458.52		458.96	0.002927	3.47	3.45	166.23	48.17	0.55
Larraun	110.8731	T100	604.00	454.02	459.73		460.40	0.003165	4.29	3.96	231.03	58.27	0.59
Larraun	110.8731	T500	784.00	454.02	460.61		461.38	0.003041	4.65	4.53	284.96	62.96	0.60

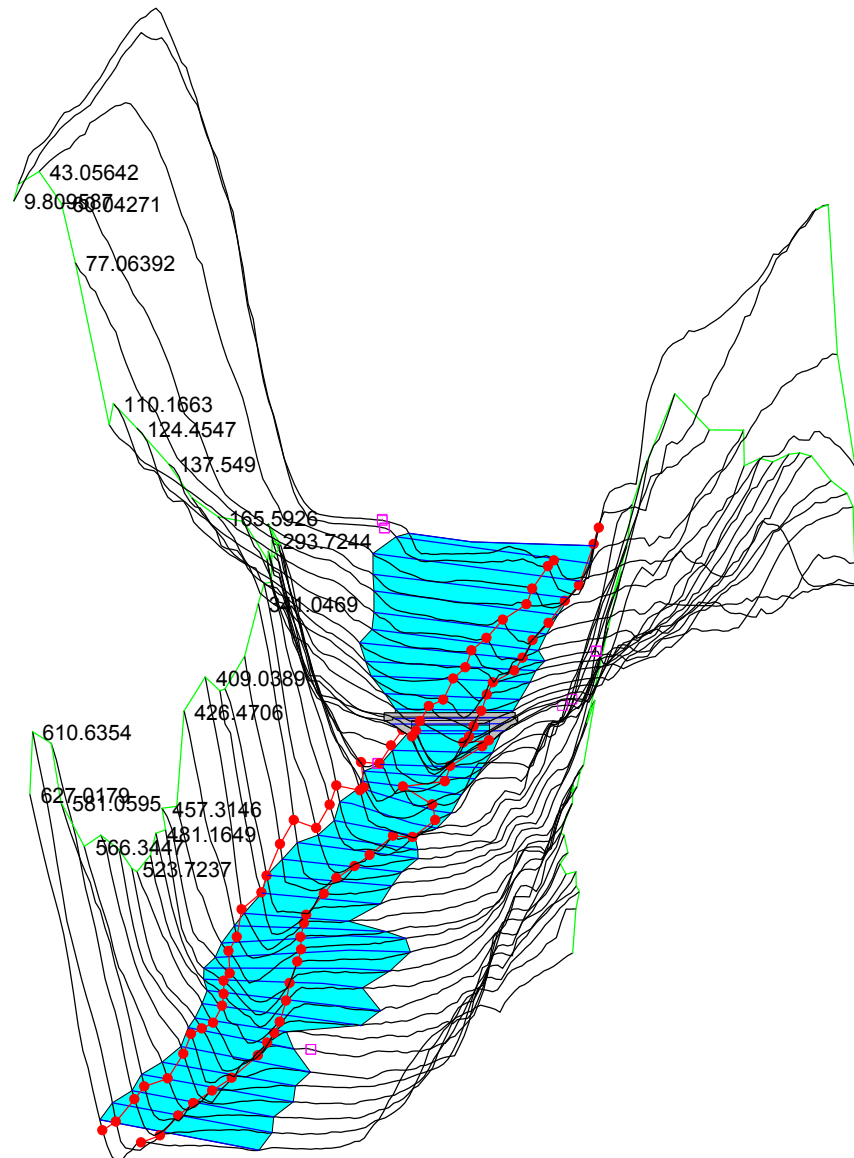
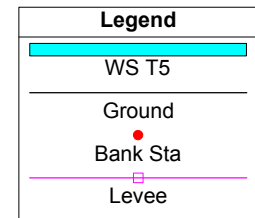
HEC-RAS Plan: (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Hydr Depth	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m)	(m2)	(m)	
Larraun	99.77825	T5	305.00	454.08	458.10		458.45	0.002398	2.99	3.20	149.86	46.79	0.49
Larraun	99.77825	T10	375.00	454.08	458.50		458.93	0.002553	3.30	3.51	168.96	48.08	0.51
Larraun	99.77825	T100	604.00	454.08	459.73		460.36	0.002732	4.04	4.26	232.42	54.62	0.55
Larraun	99.77825	T500	784.00	454.08	460.58		461.35	0.002809	4.52	4.43	284.62	64.24	0.57
Larraun	87.08531	T5	305.00	454.06	457.98		458.41	0.002636	3.14	2.99	131.16	43.94	0.51
Larraun	87.08531	T10	375.00	454.06	458.36		458.88	0.002822	3.47	3.30	148.24	44.97	0.54
Larraun	87.08531	T100	604.00	454.06	459.56		460.31	0.002984	4.21	4.13	204.62	49.55	0.58
Larraun	87.08531	T500	784.00	454.06	460.38		461.30	0.003063	4.69	4.19	249.12	59.52	0.60
Larraun	75.43925	T5	305.00	453.97	457.94		458.38	0.002573	3.09	3.23	122.63	38.00	0.51
Larraun	75.43925	T10	375.00	453.97	458.31		458.85	0.002839	3.45	3.52	136.56	38.84	0.54
Larraun	75.43925	T100	604.00	453.97	459.43		460.26	0.003216	4.30	4.36	181.75	41.66	0.60
Larraun	75.43925	T500	784.00	453.97	460.22		461.25	0.003347	4.81	4.89	215.46	44.08	0.62
Larraun	64.43741	T5	305.00	454.10	457.86		458.34	0.003172	3.21	2.99	114.05	38.12	0.55
Larraun	64.43741	T10	375.00	454.10	458.22		458.81	0.003431	3.57	3.28	127.73	38.93	0.58
Larraun	64.43741	T100	604.00	454.10	459.34		460.22	0.003672	4.38	4.16	172.88	41.56	0.63
Larraun	64.43741	T500	784.00	454.10	460.12		461.20	0.003763	4.89	4.57	206.55	45.21	0.65
Larraun	53.30852	T5	305.00	454.44	457.71		458.29	0.004236	3.52	2.77	103.70	37.37	0.63
Larraun	53.30852	T10	375.00	454.44	458.04		458.75	0.004570	3.90	3.05	116.08	38.12	0.66
Larraun	53.30852	T100	604.00	454.44	459.13		460.15	0.004676	4.72	3.90	159.05	40.76	0.70
Larraun	53.30852	T500	784.00	454.44	459.90		461.14	0.004628	5.21	4.42	191.26	43.23	0.72
Larraun	41.76159	T5	305.00	454.17	457.76		458.21	0.003295	3.18	2.76	125.70	45.61	0.56
Larraun	41.76159	T10	375.00	454.17	458.11		458.65	0.003518	3.52	3.00	141.94	47.36	0.59
Larraun	41.76159	T100	604.00	454.17	459.28		460.02	0.003445	4.18	3.82	200.50	52.53	0.61
Larraun	41.76159	T500	784.00	454.17	460.11		460.98	0.003285	4.54	4.41	245.75	55.68	0.61
Larraun	32.0429	T5	305.00	454.67	457.59		458.14	0.008672	3.88	1.93	117.82	61.00	0.84
Larraun	32.0429	T10	375.00	454.67	458.06		458.60	0.006662	3.88	2.34	146.62	62.61	0.76
Larraun	32.0429	T100	604.00	454.67	459.34		459.94	0.004396	4.10	3.41	229.39	67.19	0.66
Larraun	32.0429	T500	784.00	454.67	460.23		460.88	0.003720	4.32	3.99	291.77	73.22	0.63
Larraun	21.77181	T5	305.00	454.89	457.67		458.01	0.004840	3.17	2.17	153.57	70.93	0.64
Larraun	21.77181	T10	375.00	454.89	458.14		458.49	0.003957	3.22	2.59	187.26	72.33	0.60
Larraun	21.77181	T100	604.00	454.89	459.44		459.84	0.002865	3.50	3.69	284.17	77.06	0.54
Larraun	21.77181	T500	784.00	454.89	460.34		460.78	0.002476	3.70	4.38	355.23	81.12	0.52
Larraun	7.087183	T5	305.00	453.53	457.77	455.89	457.93	0.001120	2.12	3.04	240.78	79.21	0.34
Larraun	7.087183	T10	375.00	453.53	458.23	456.16	458.41	0.001121	2.28	3.42	277.86	81.21	0.34
Larraun	7.087183	T100	604.00	453.53	459.53	456.86	459.77	0.001121	2.70	4.46	386.56	86.60	0.36
Larraun	7.087183	T500	784.00	453.53	460.43	457.36	460.71	0.001122	2.97	4.91	468.58	95.42	0.37

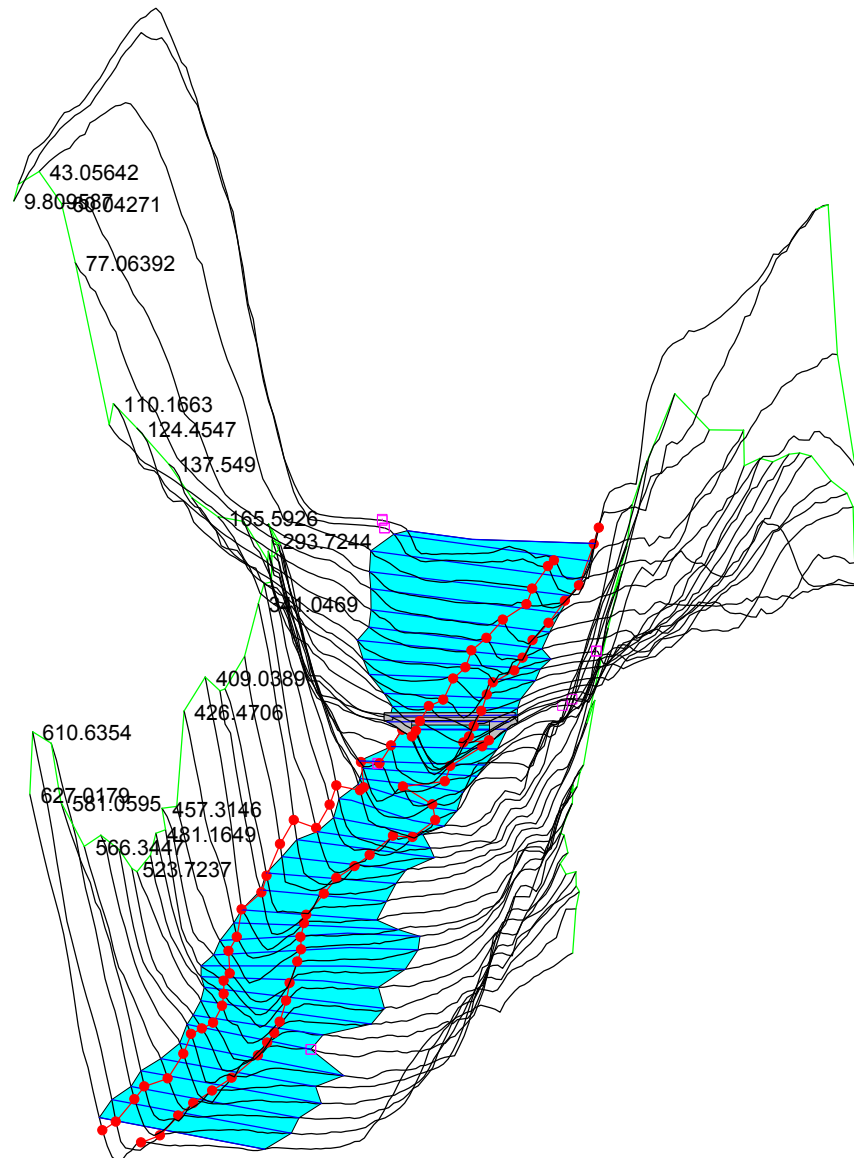
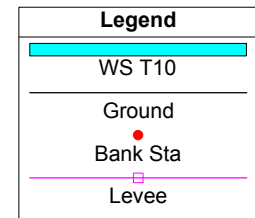
8.2.2. Vista 3D del tramo (Q₅, Q₁₀, Q₁₀₀ y Q₅₀₀)

NUEVA PASARELA PEATONAL SOBRE EL RÍO BASABURUA

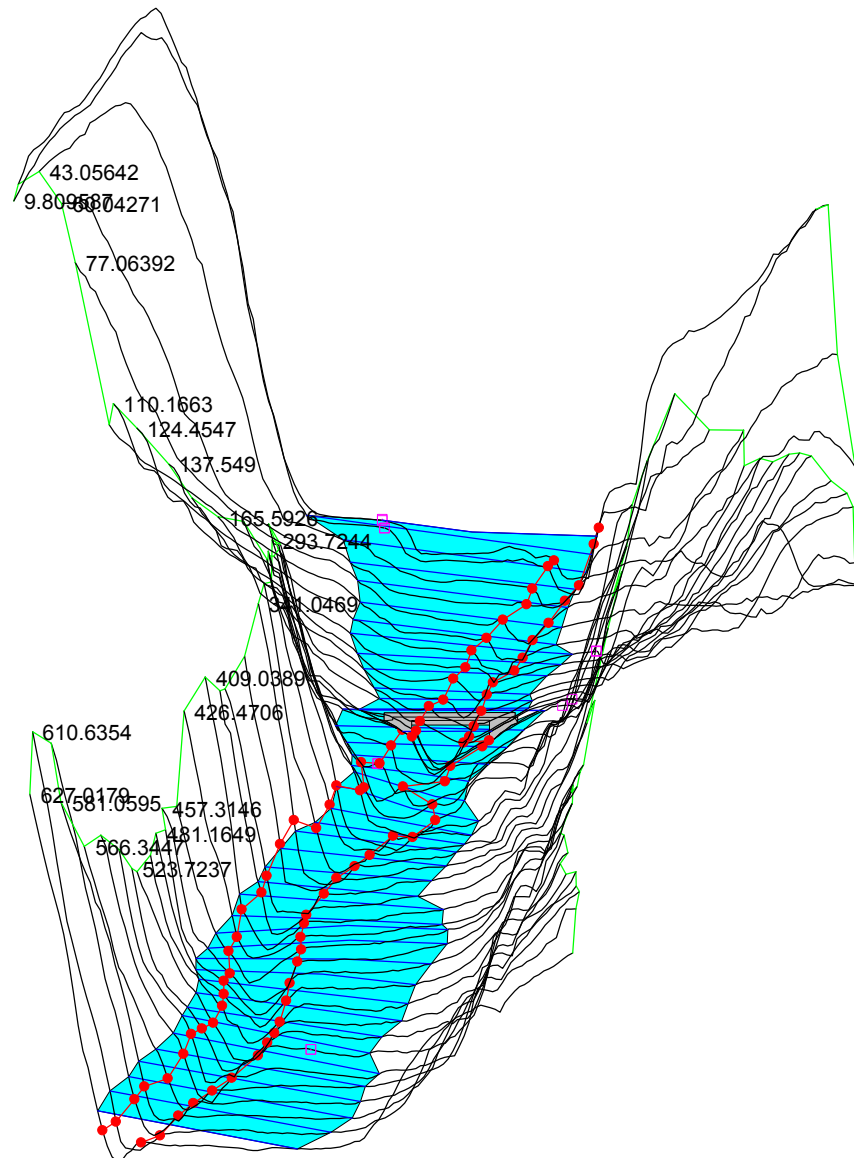
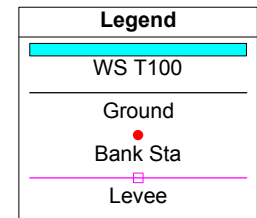
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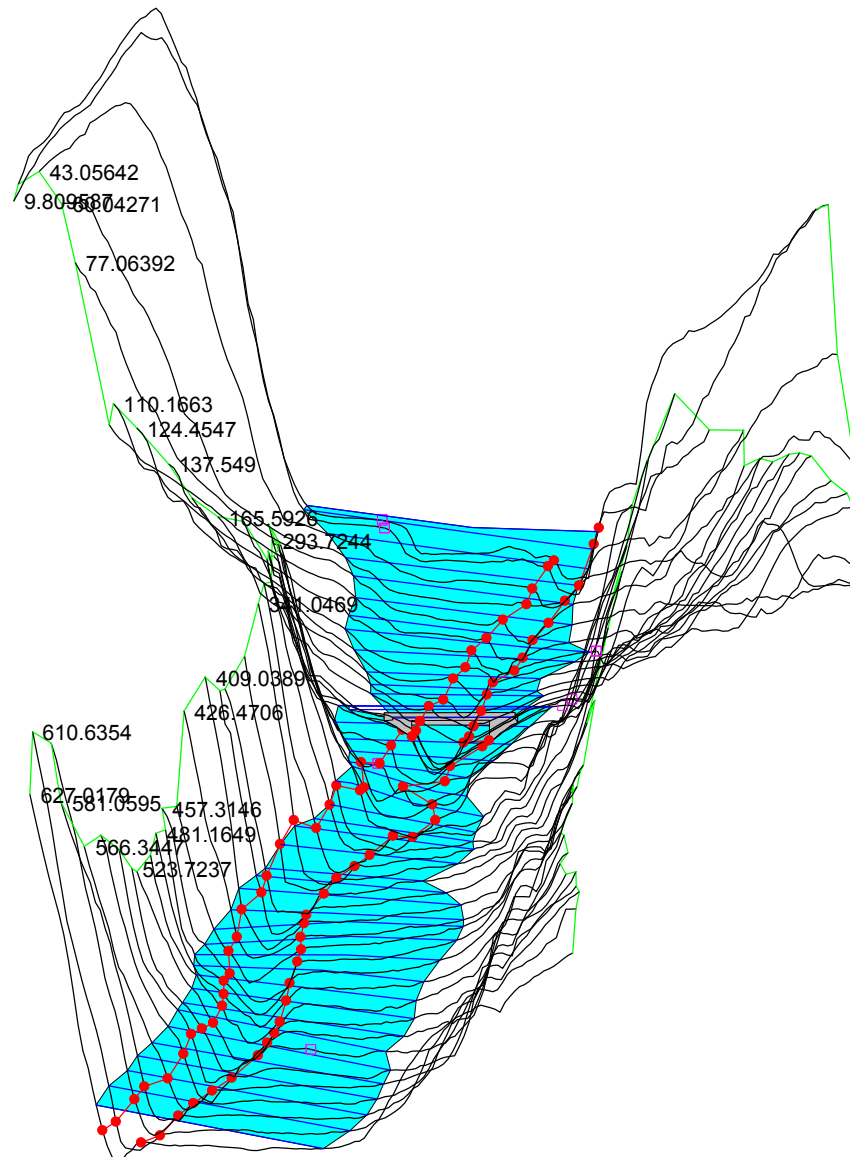
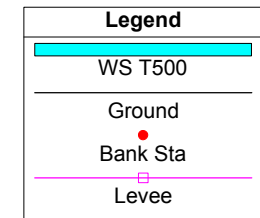


Basaburua01_fut Plan: Plan 01 02/10/2018

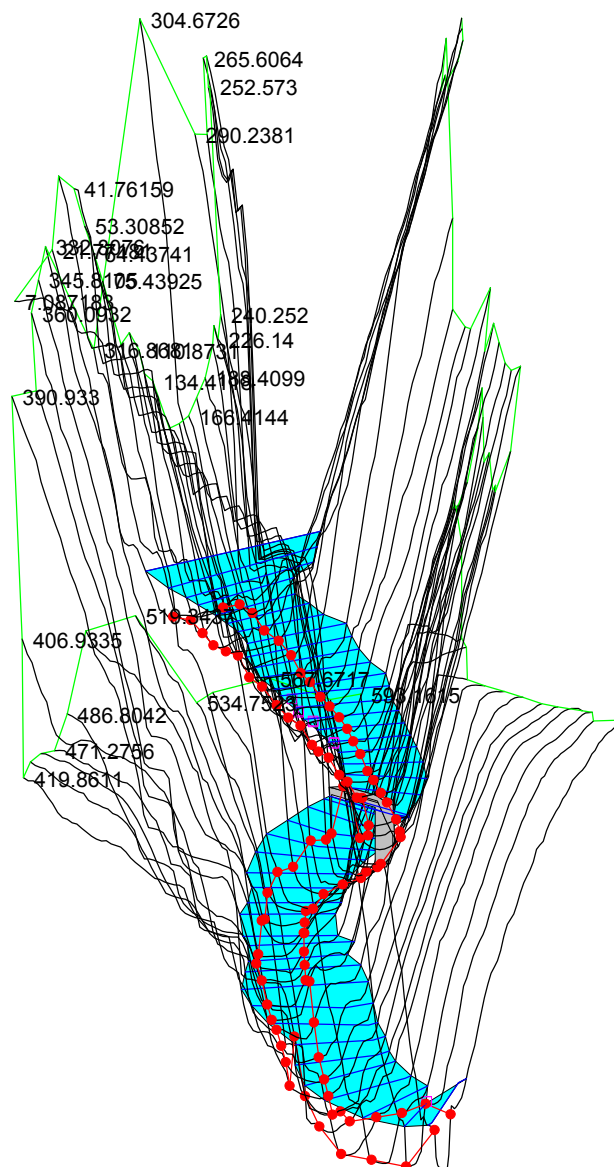


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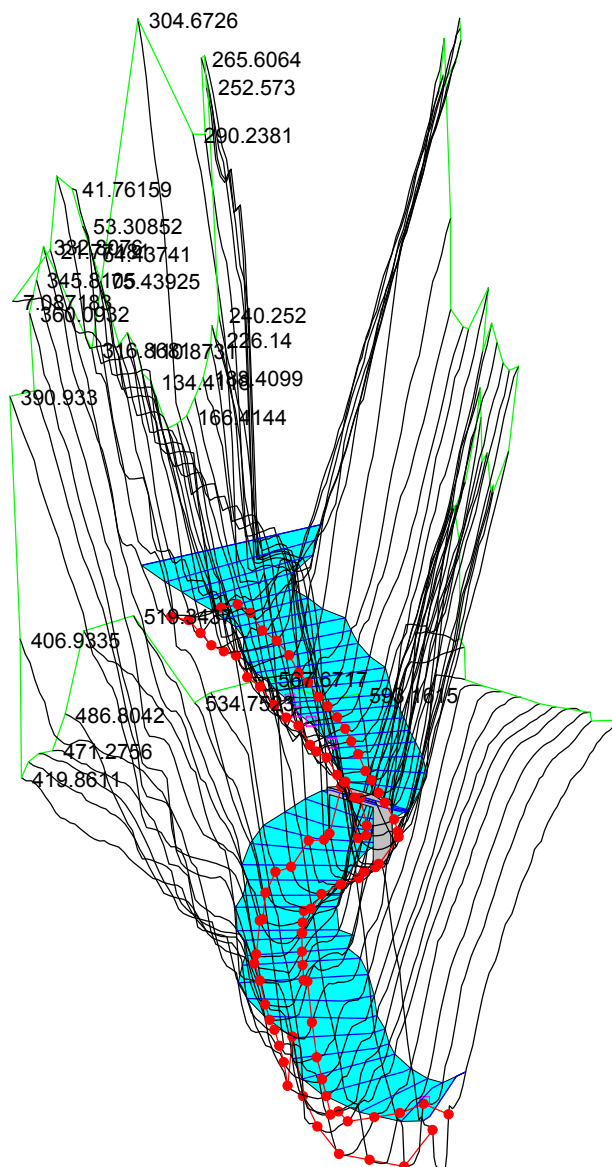


NUEVA PASARELA PEATONAL SOBRE EL RÍO LARRAUN



Legend	
	WS T5
	Ground
	Bank Sta
	Levee

Larraun_fut Plan: Plan 01 20/09/2018



Legend

- WS T10
- Ground
- Bank Sta
- Levee

Larraun_fut Plan: Plan 01 20/09/2018

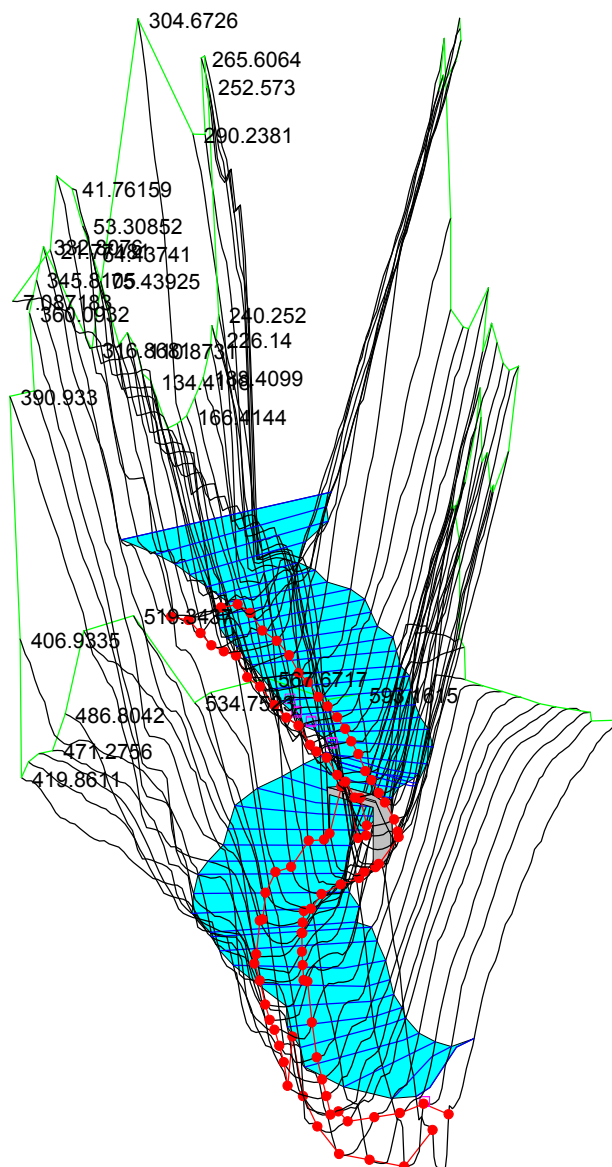
Legend

WS T500

Ground

Bank Sta

Levee



Larraun_fut Plan: Plan 01 20/09/2018

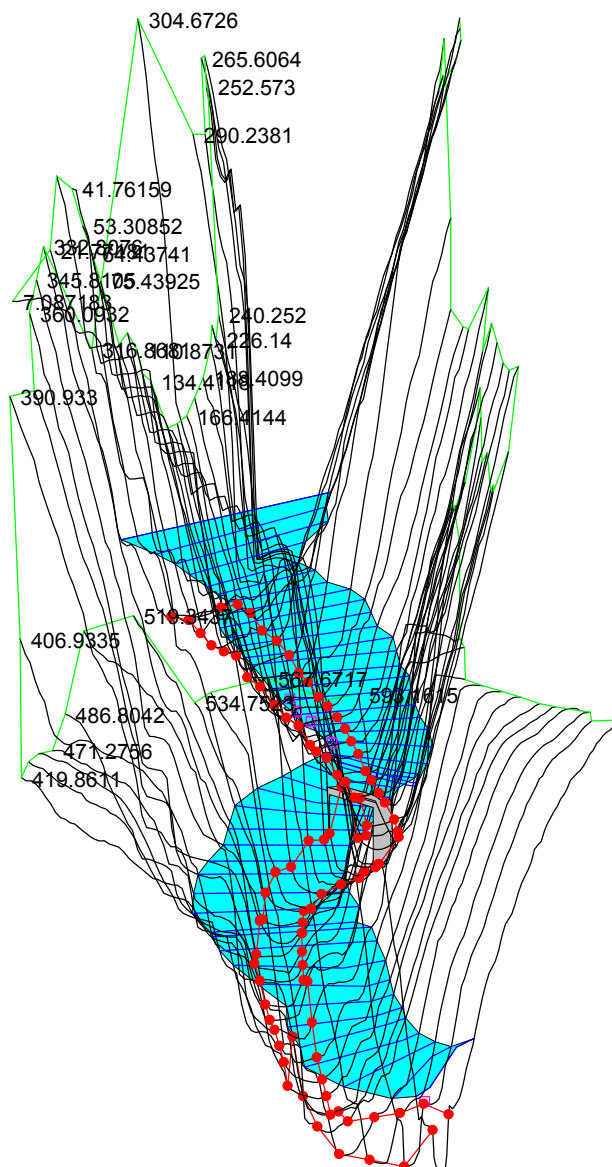
Legend

WS T500

Ground

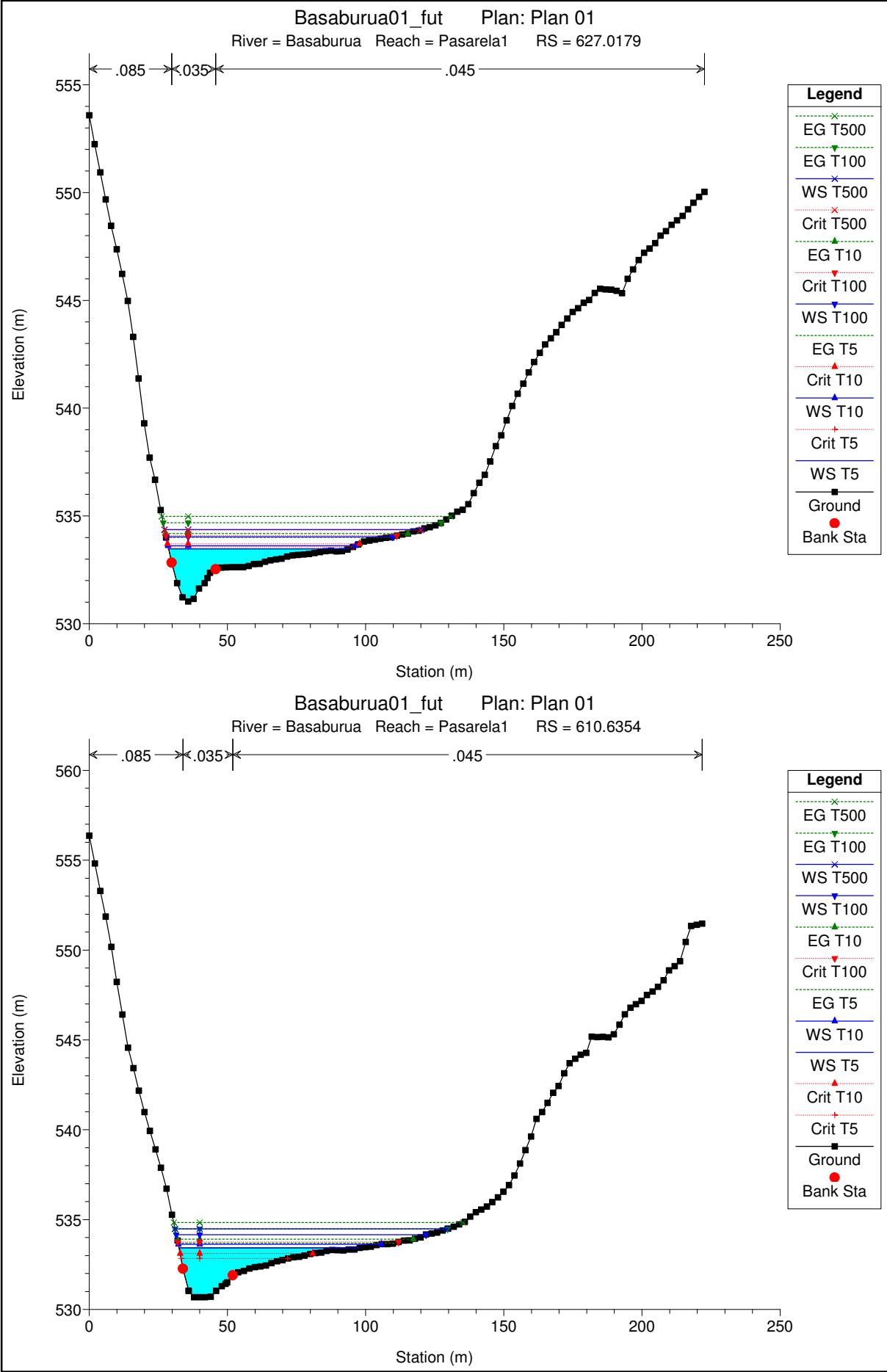
Bank Sta

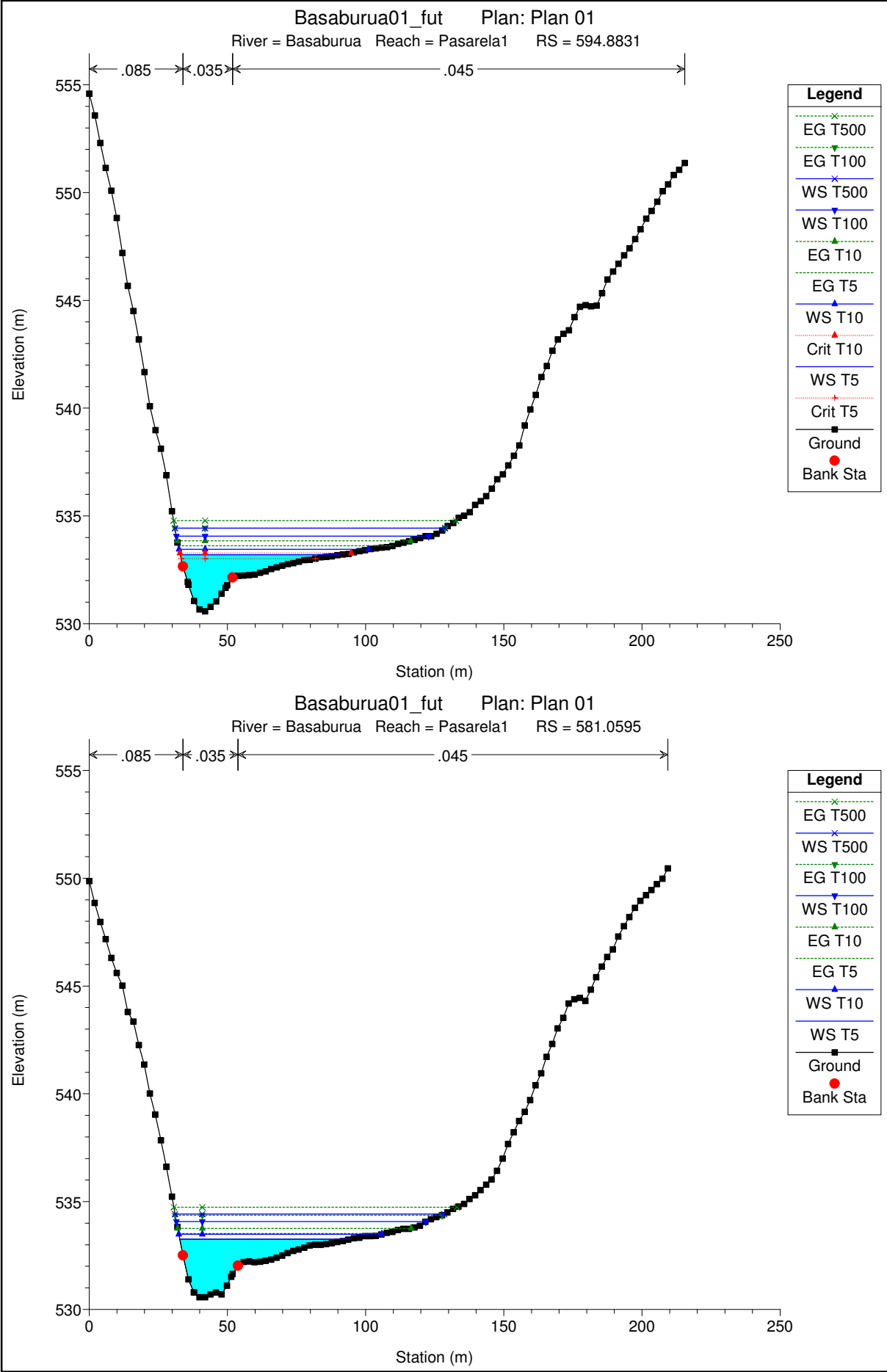
Levee

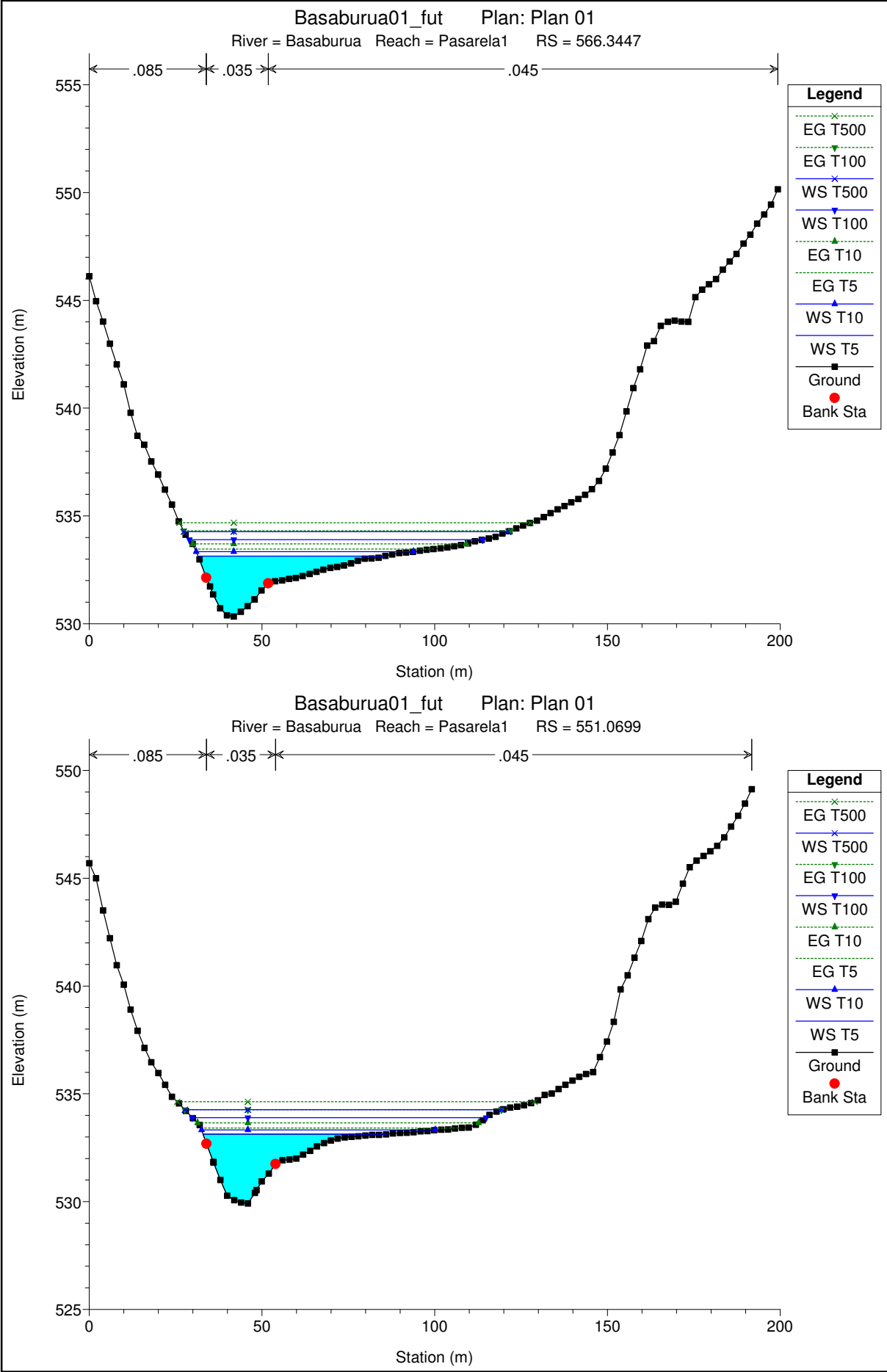


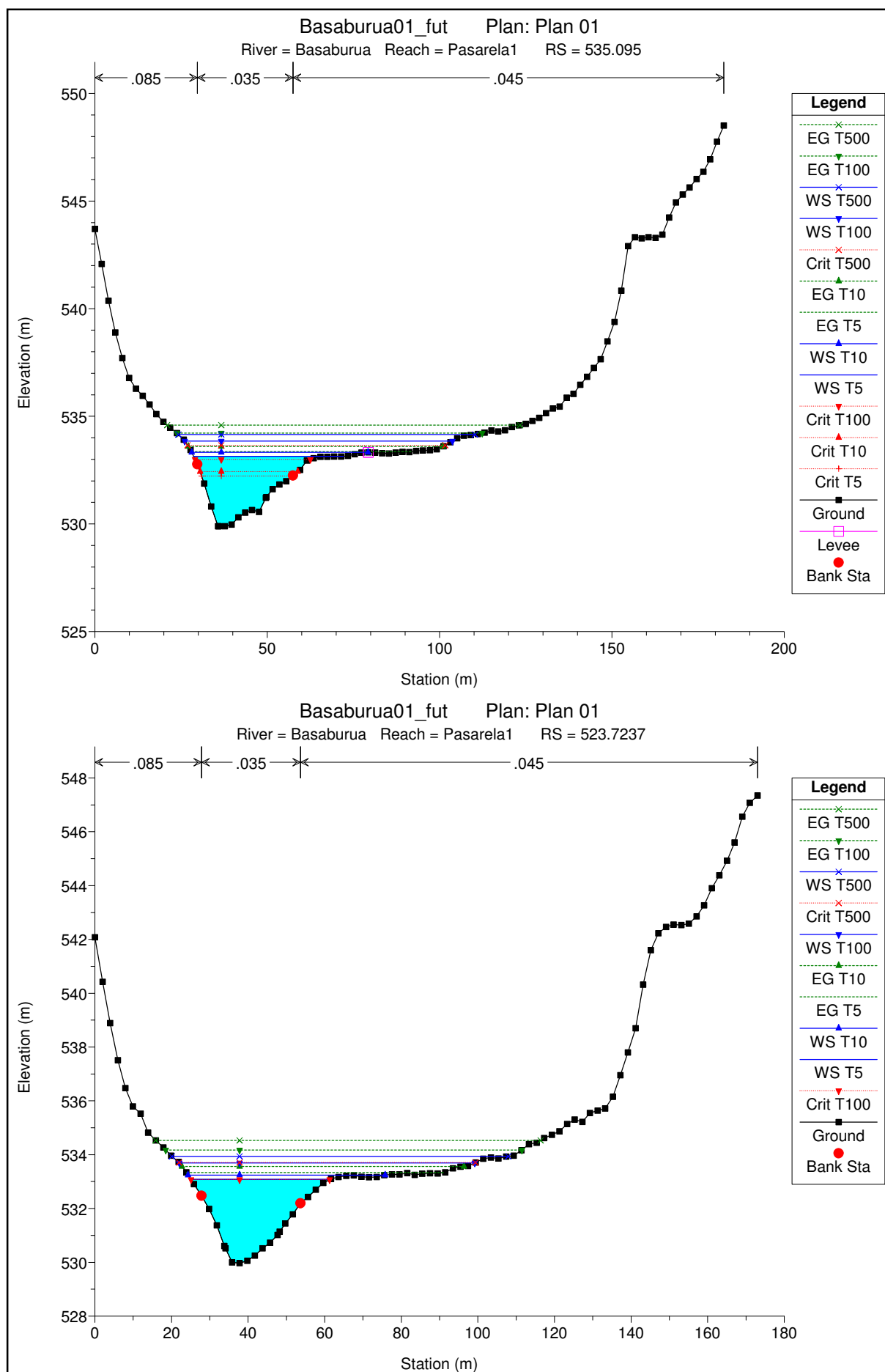
8.2.3. Perfiles transversales

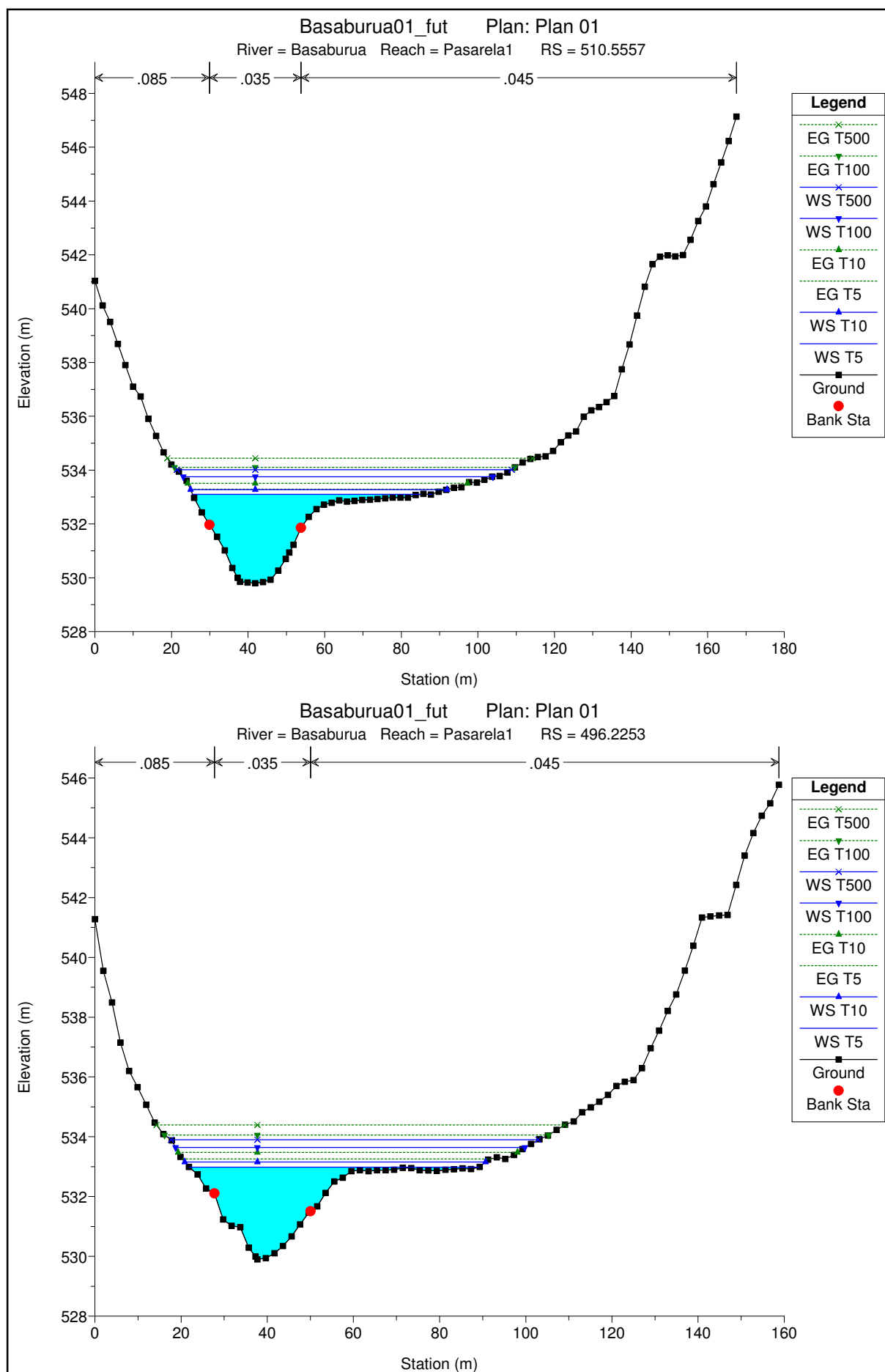
NUEVA PASARELA PEATONAL SOBRE EL RÍO BASABURUA

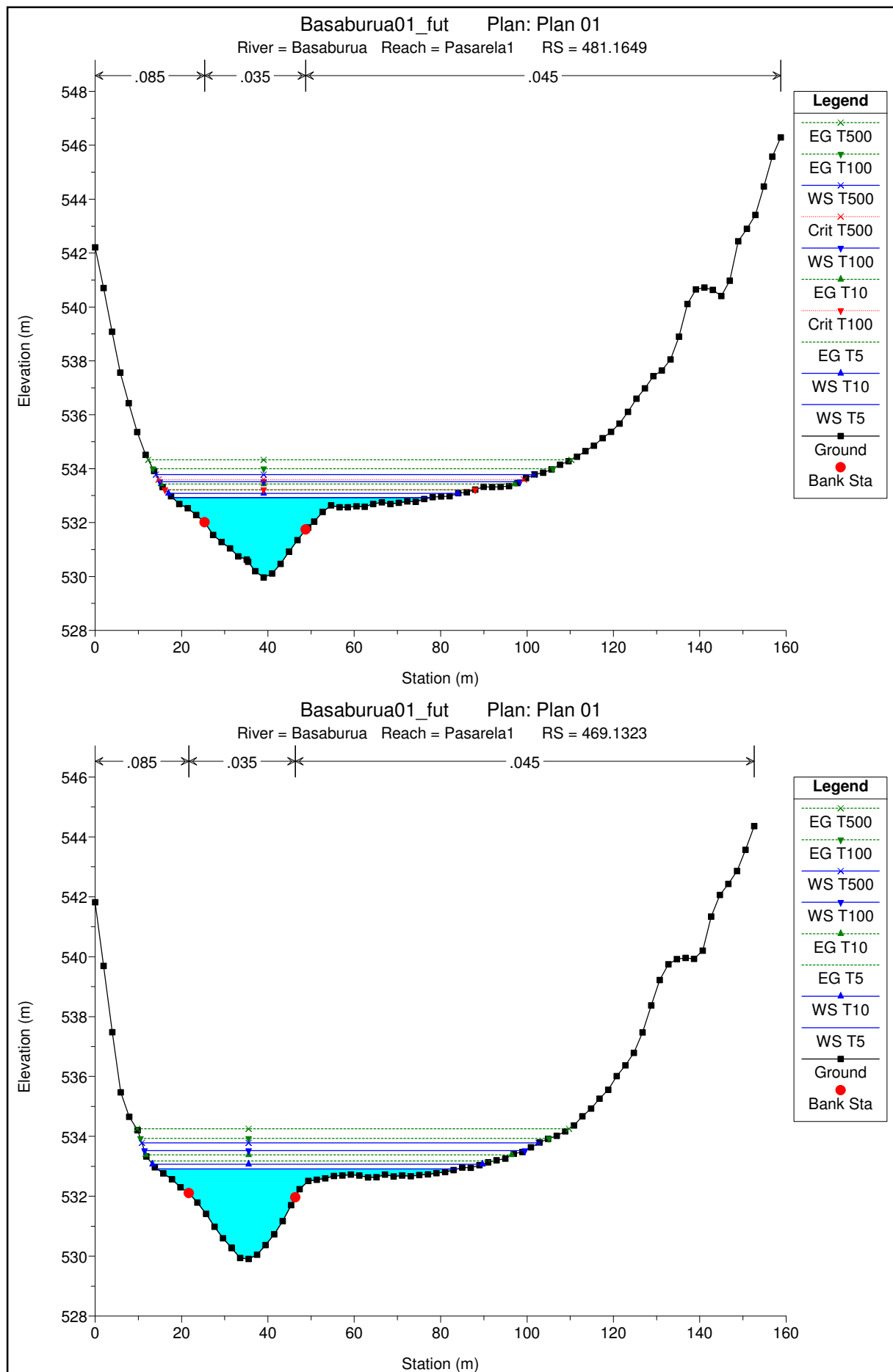


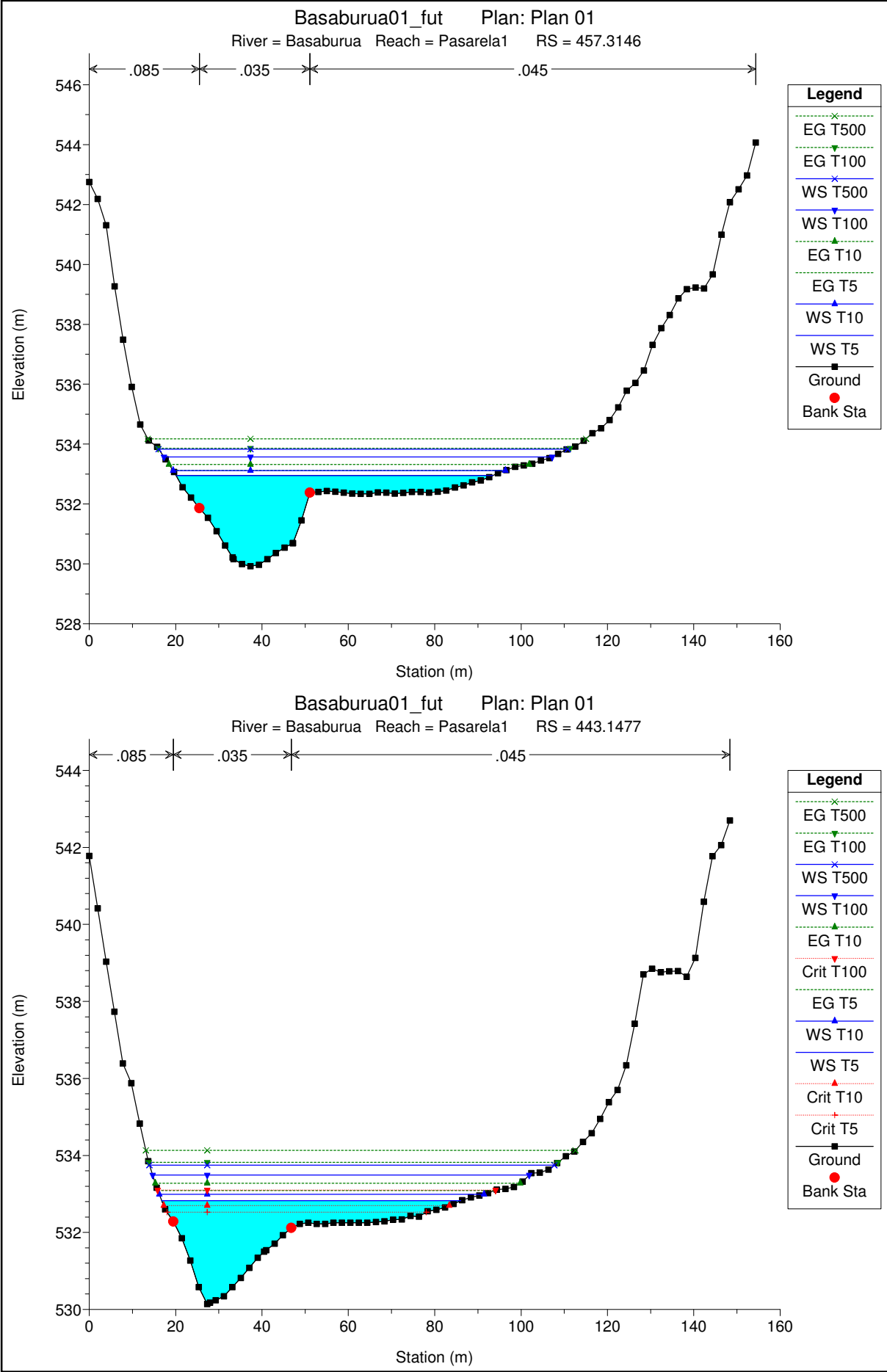


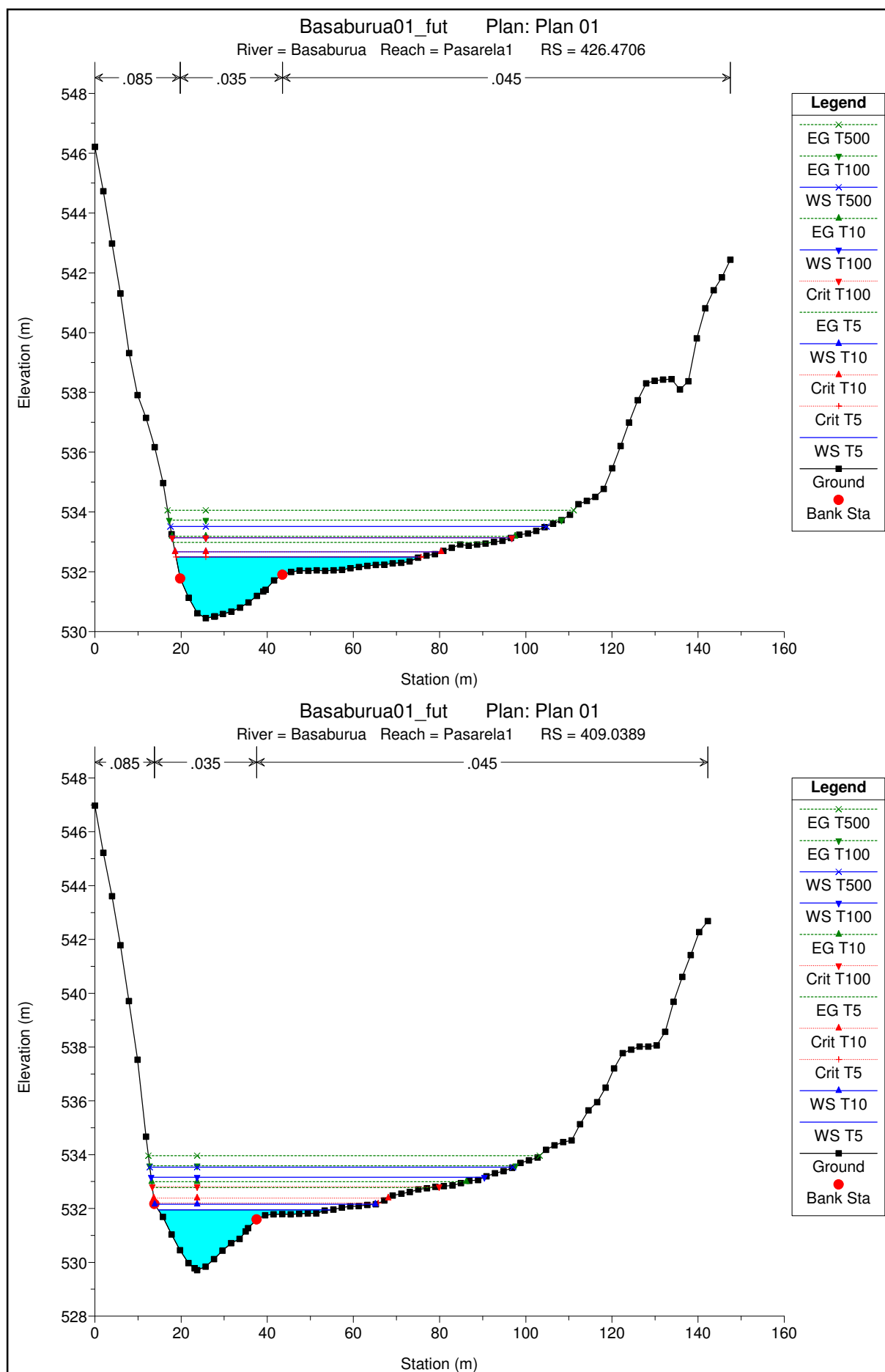


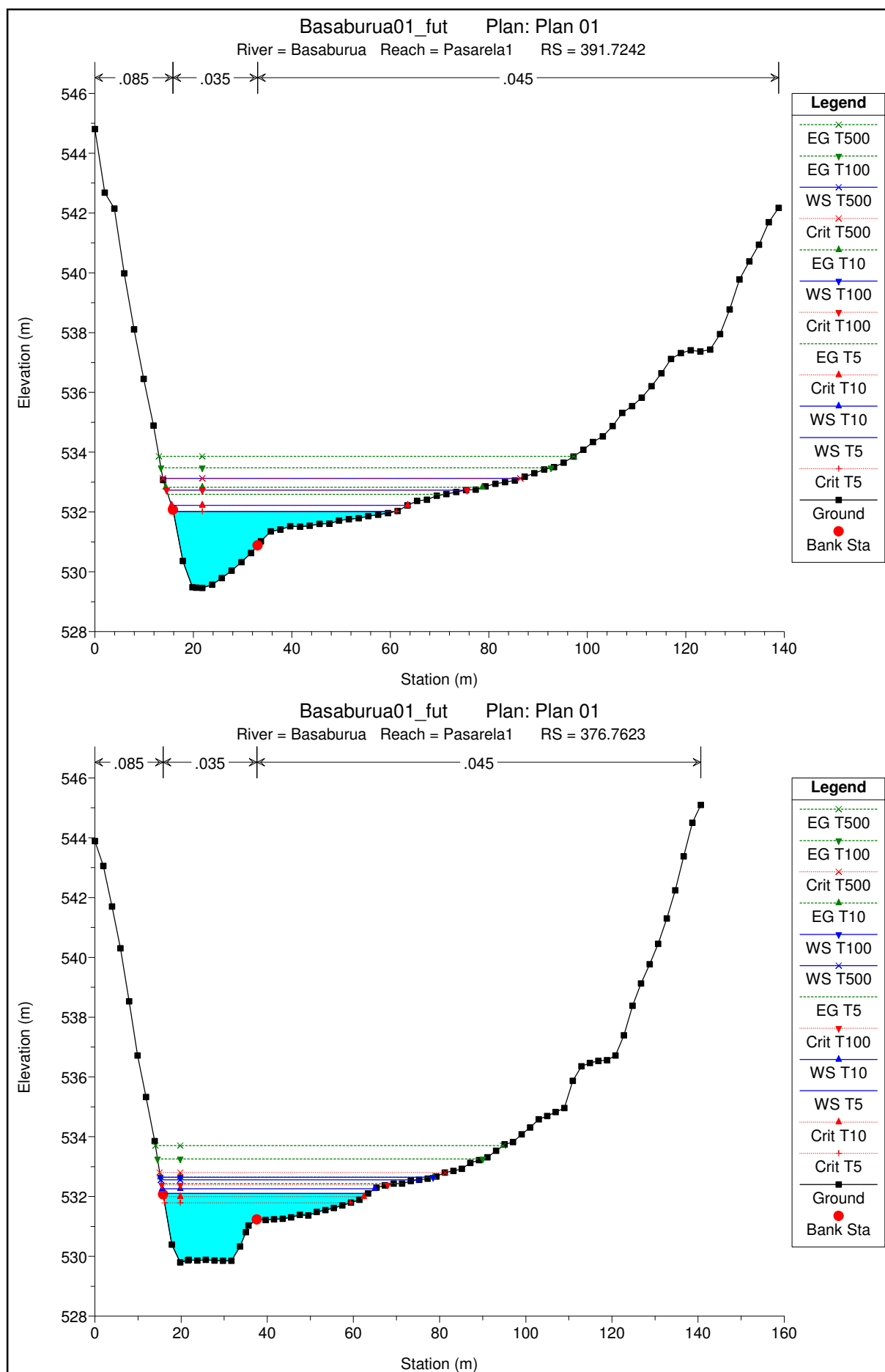


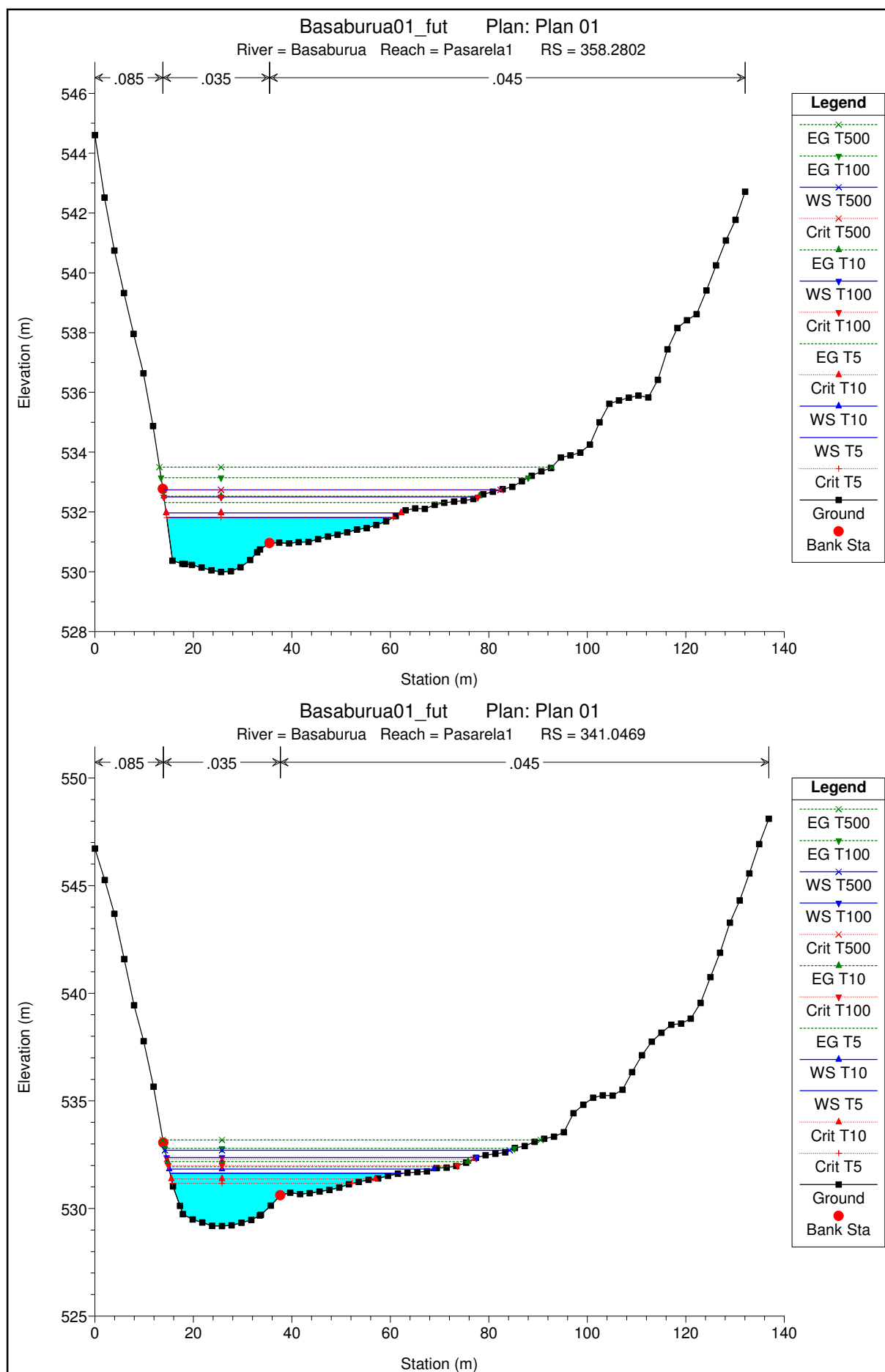


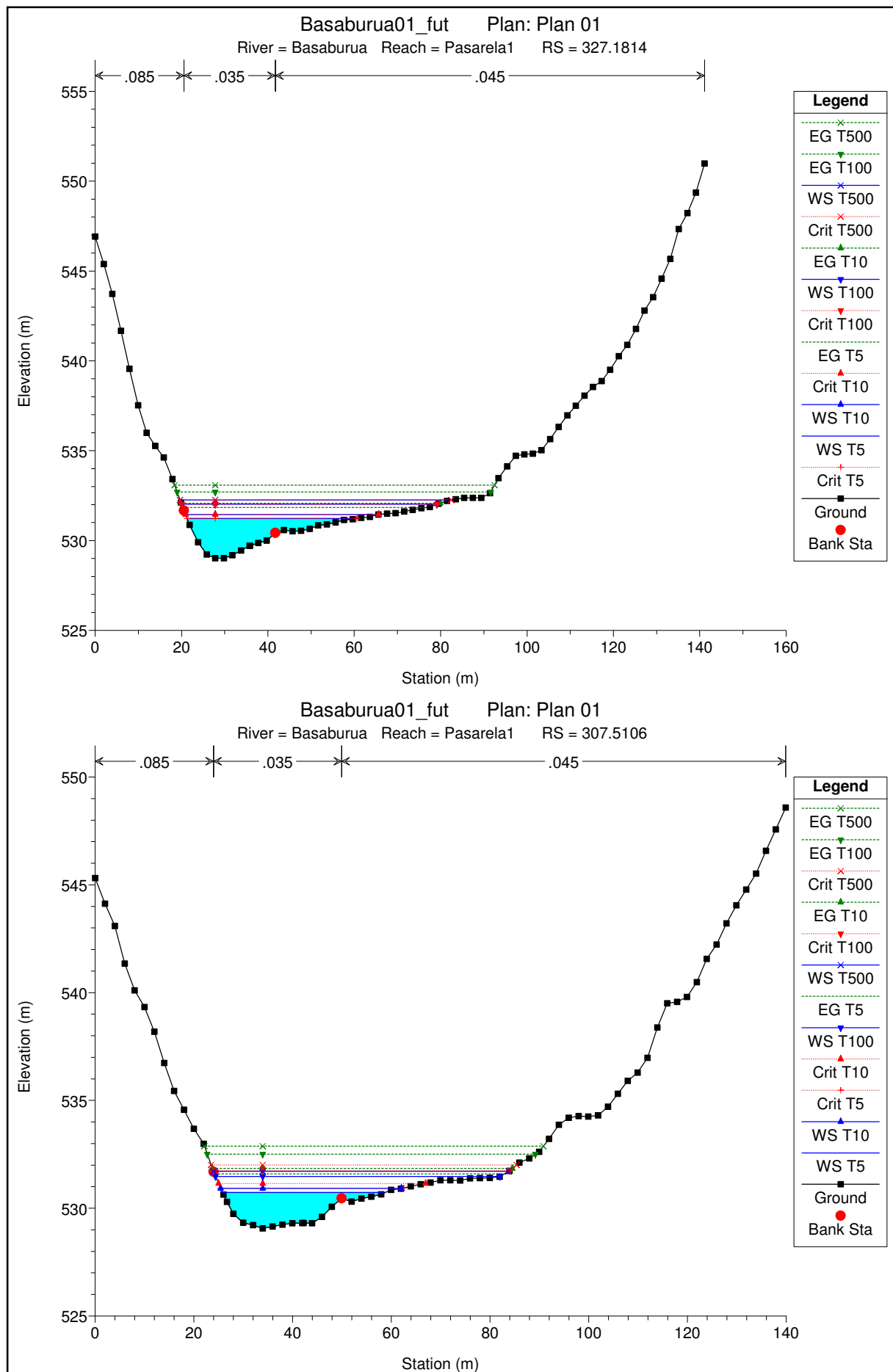


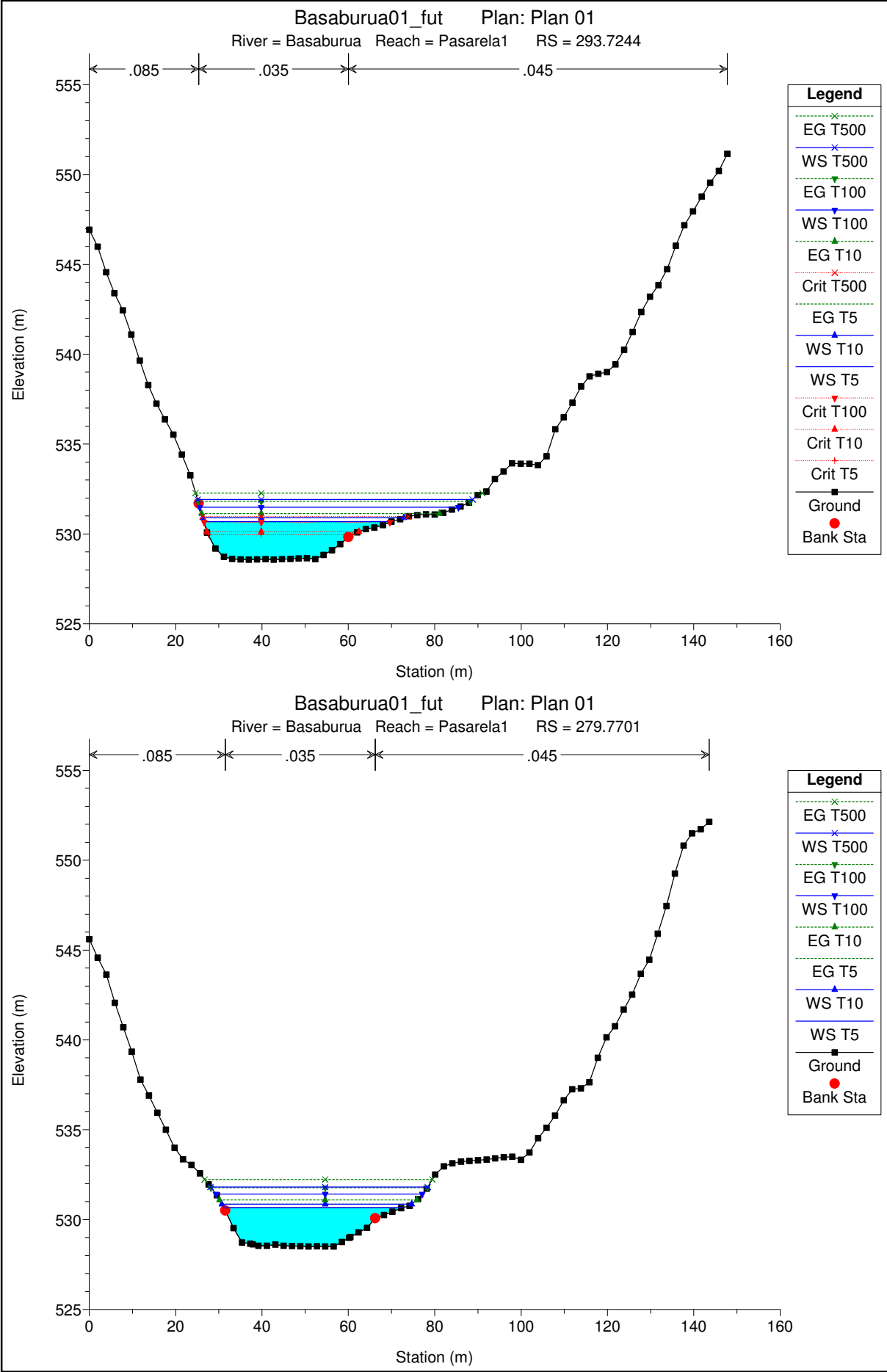


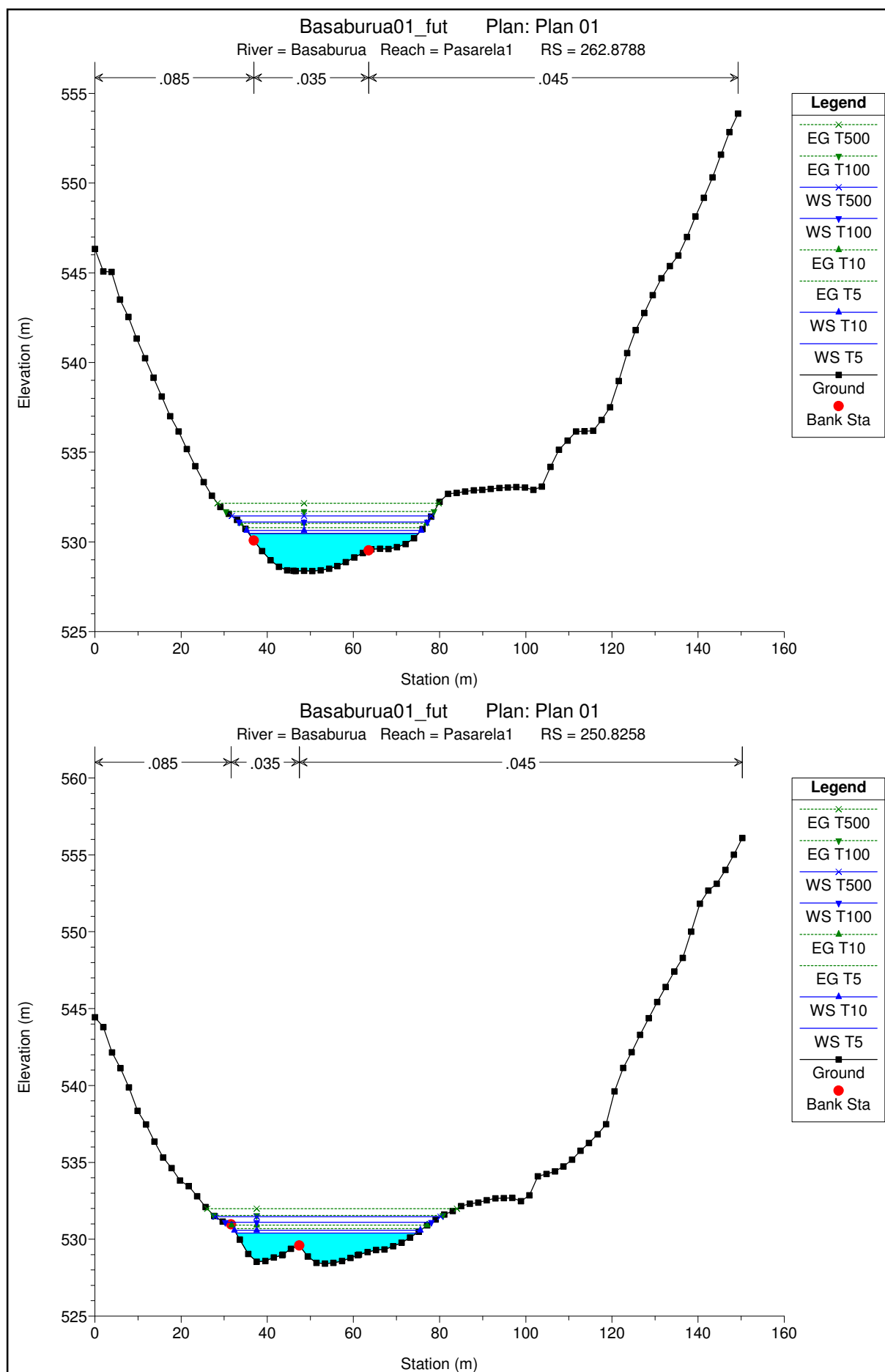


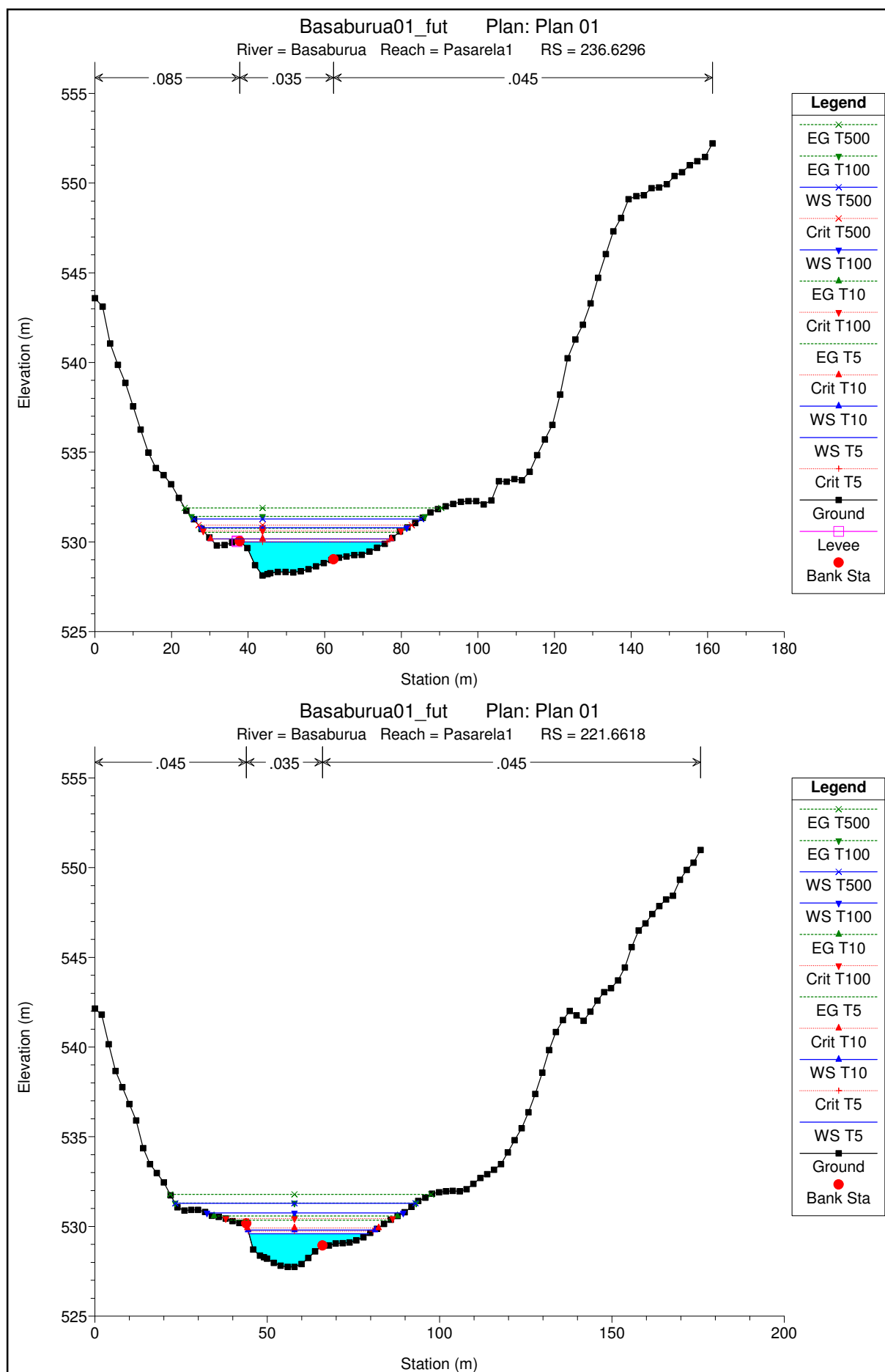


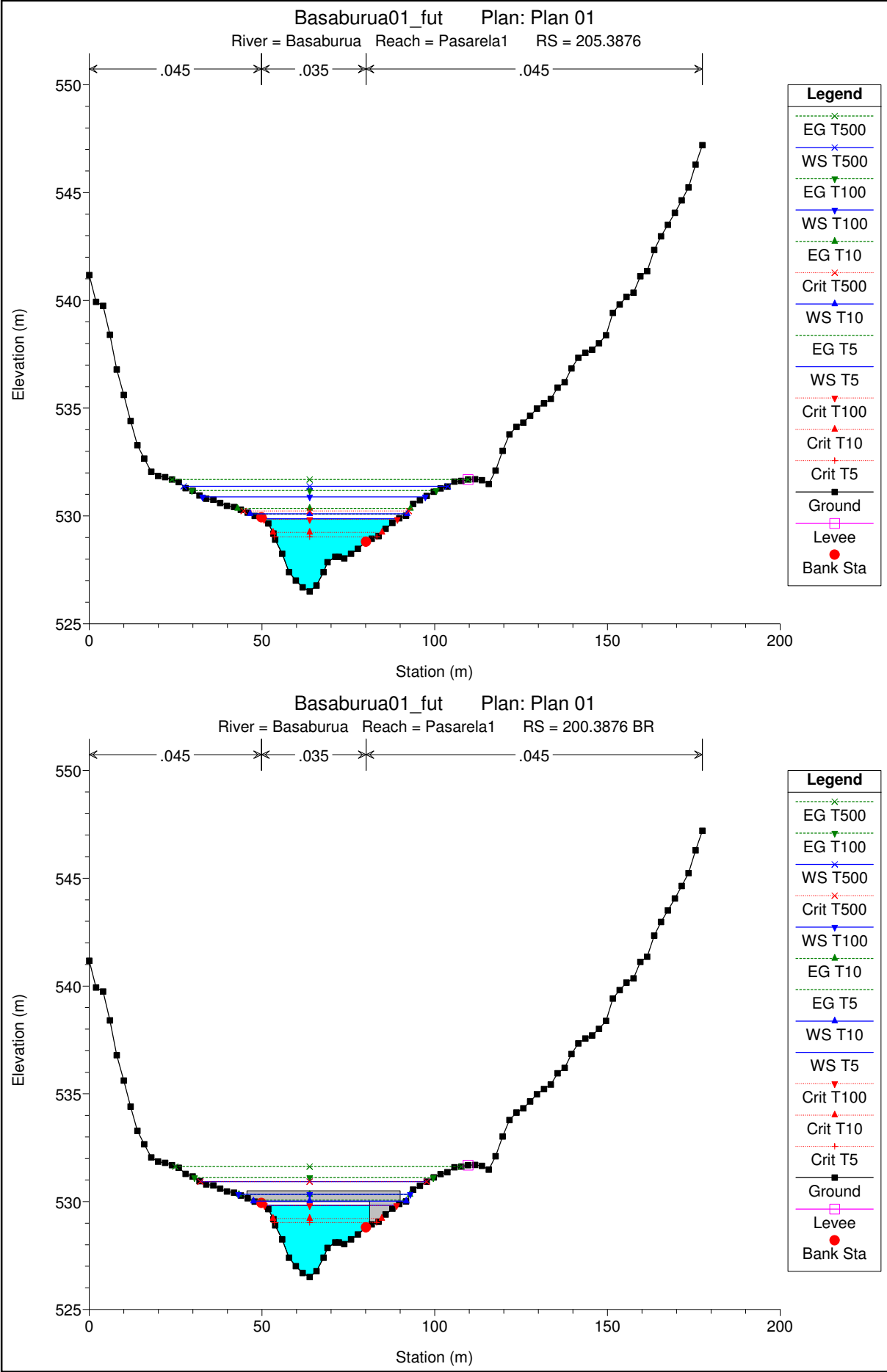


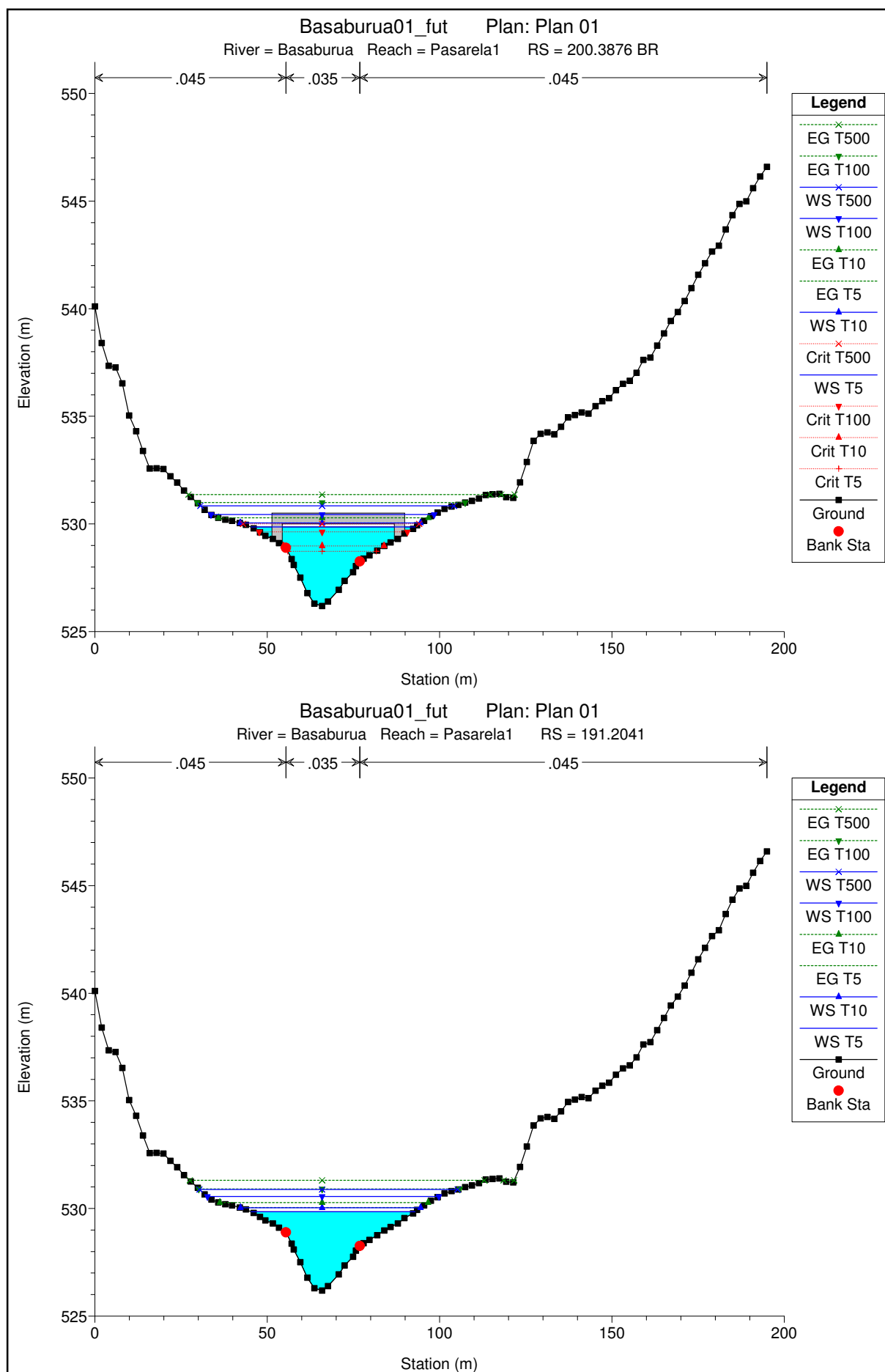


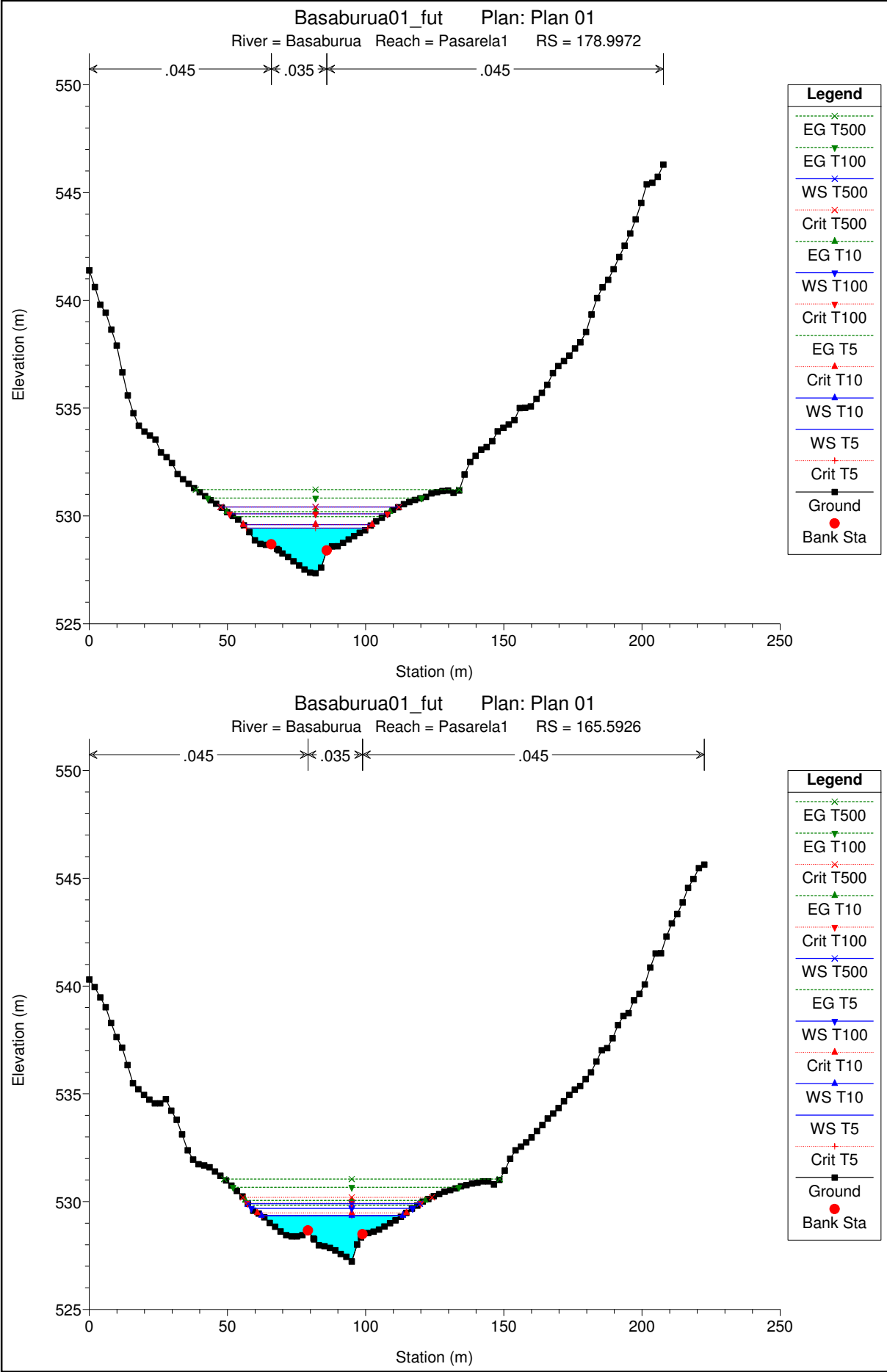


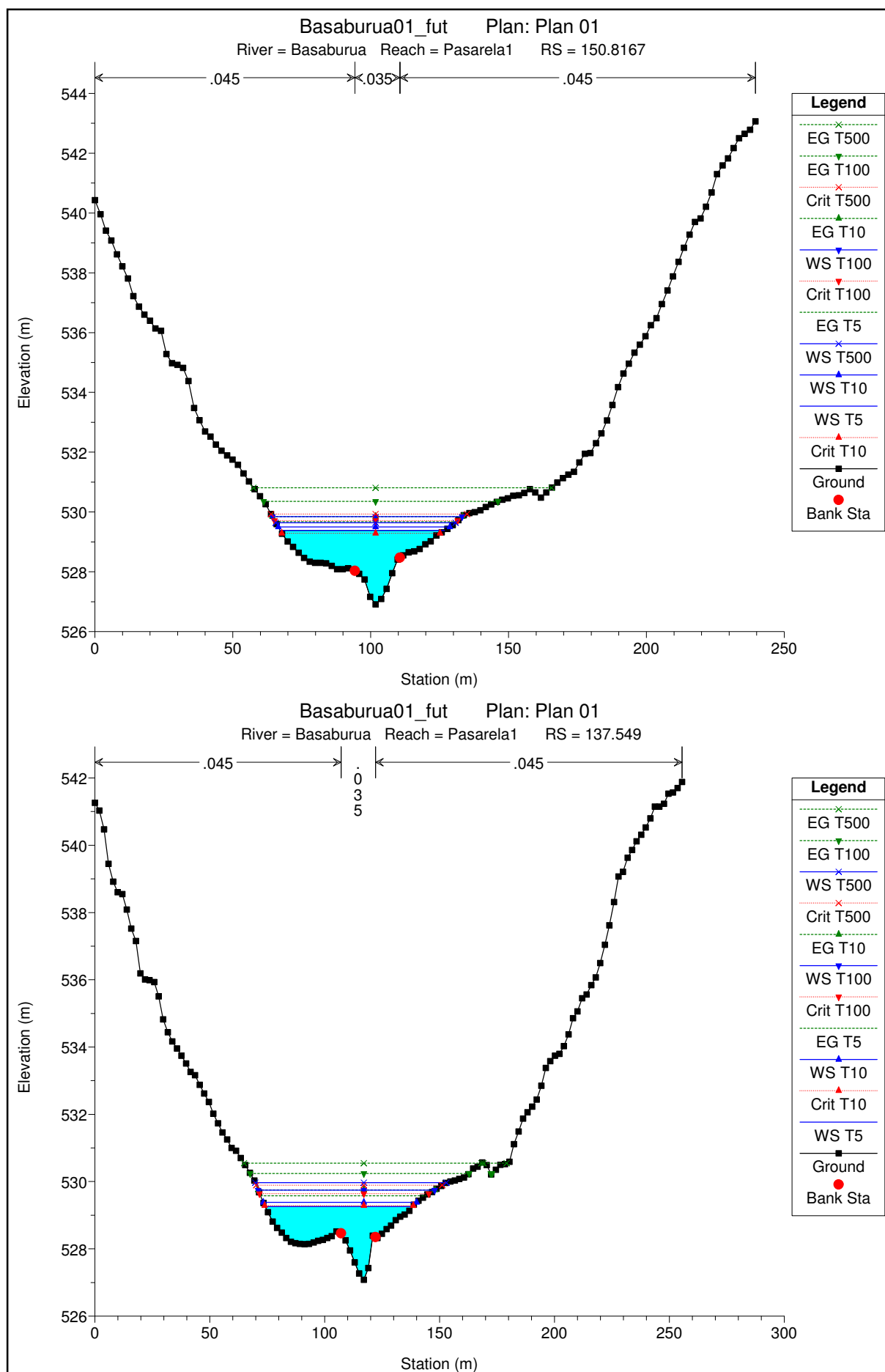


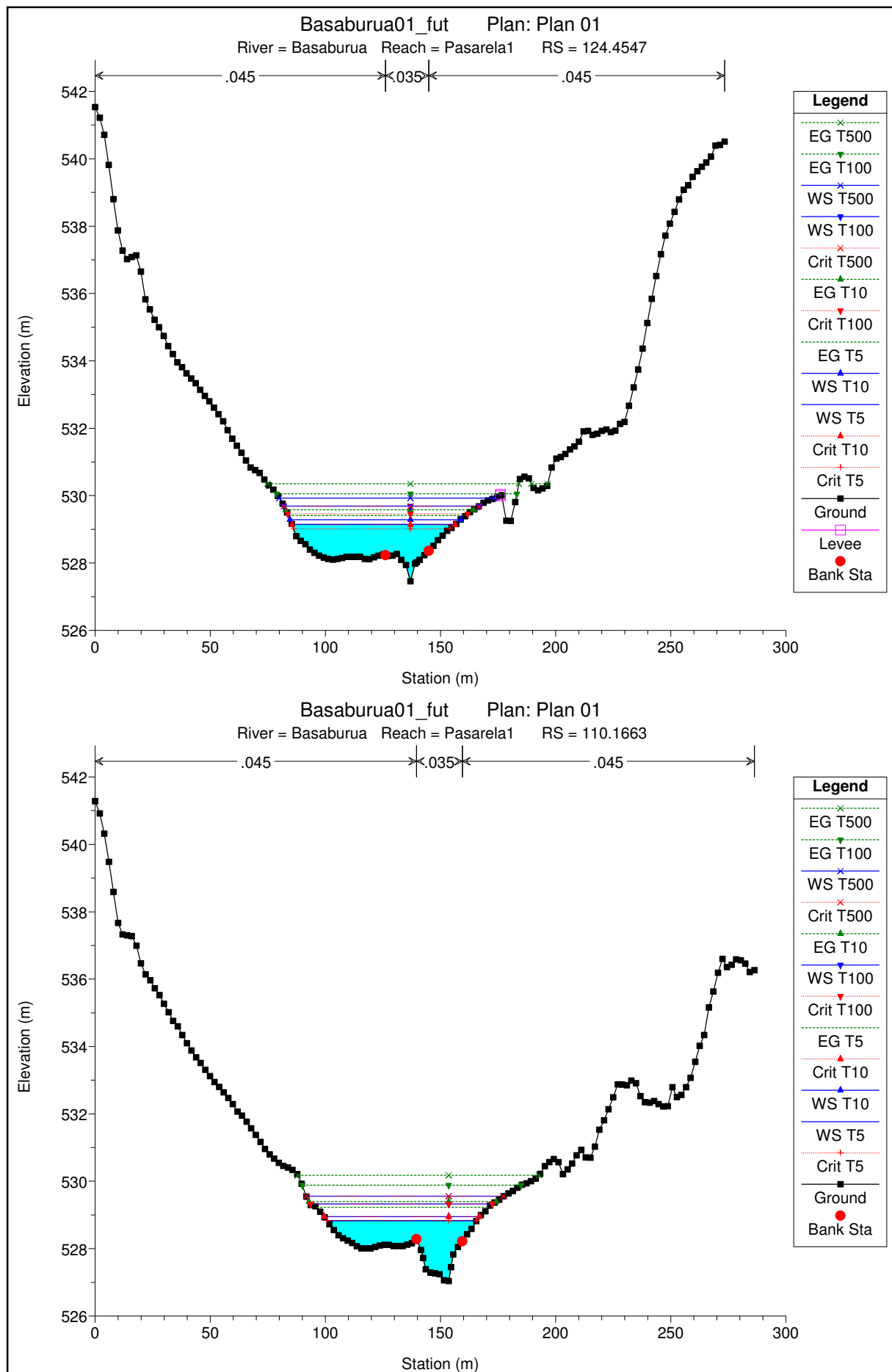


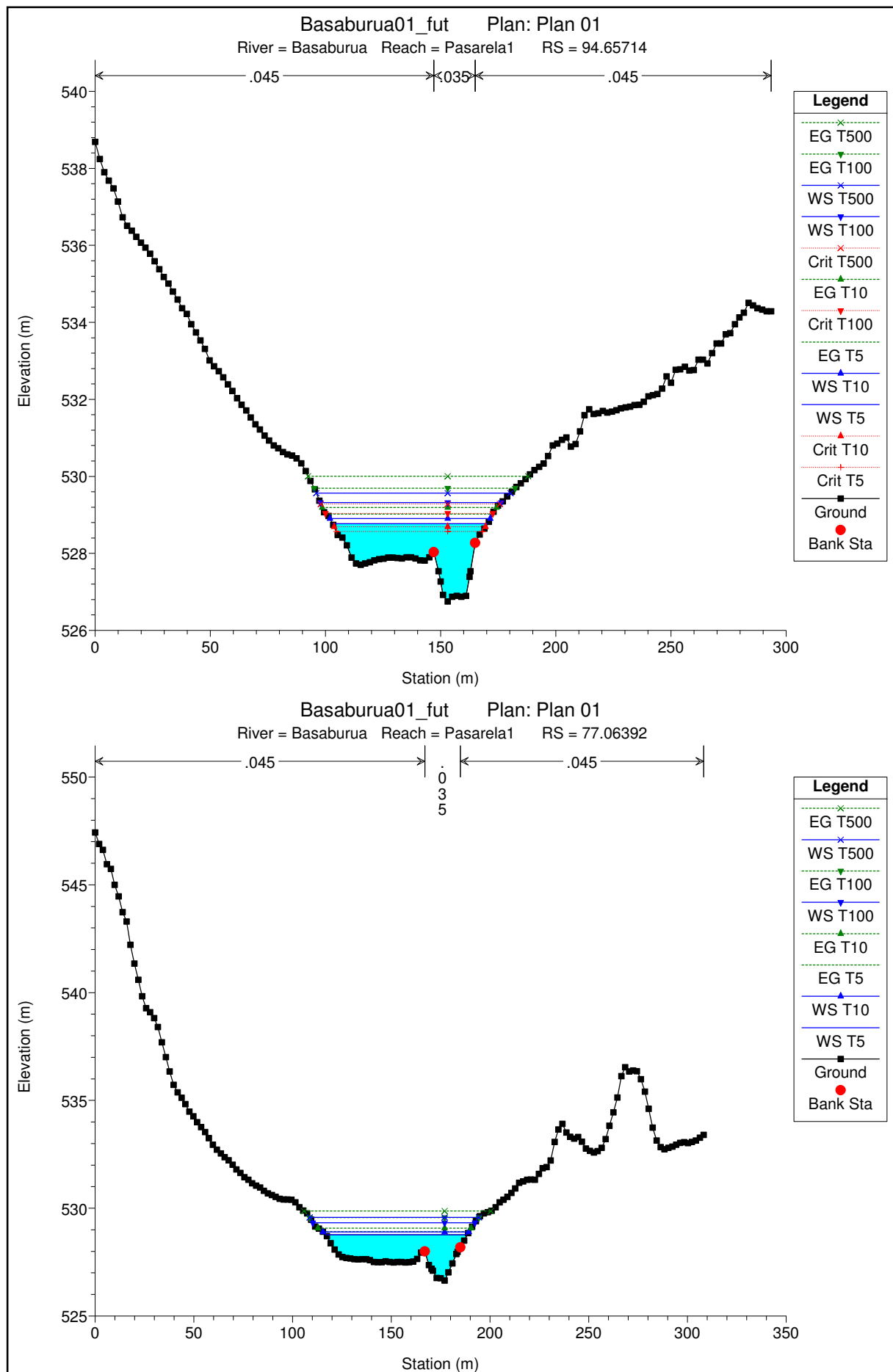


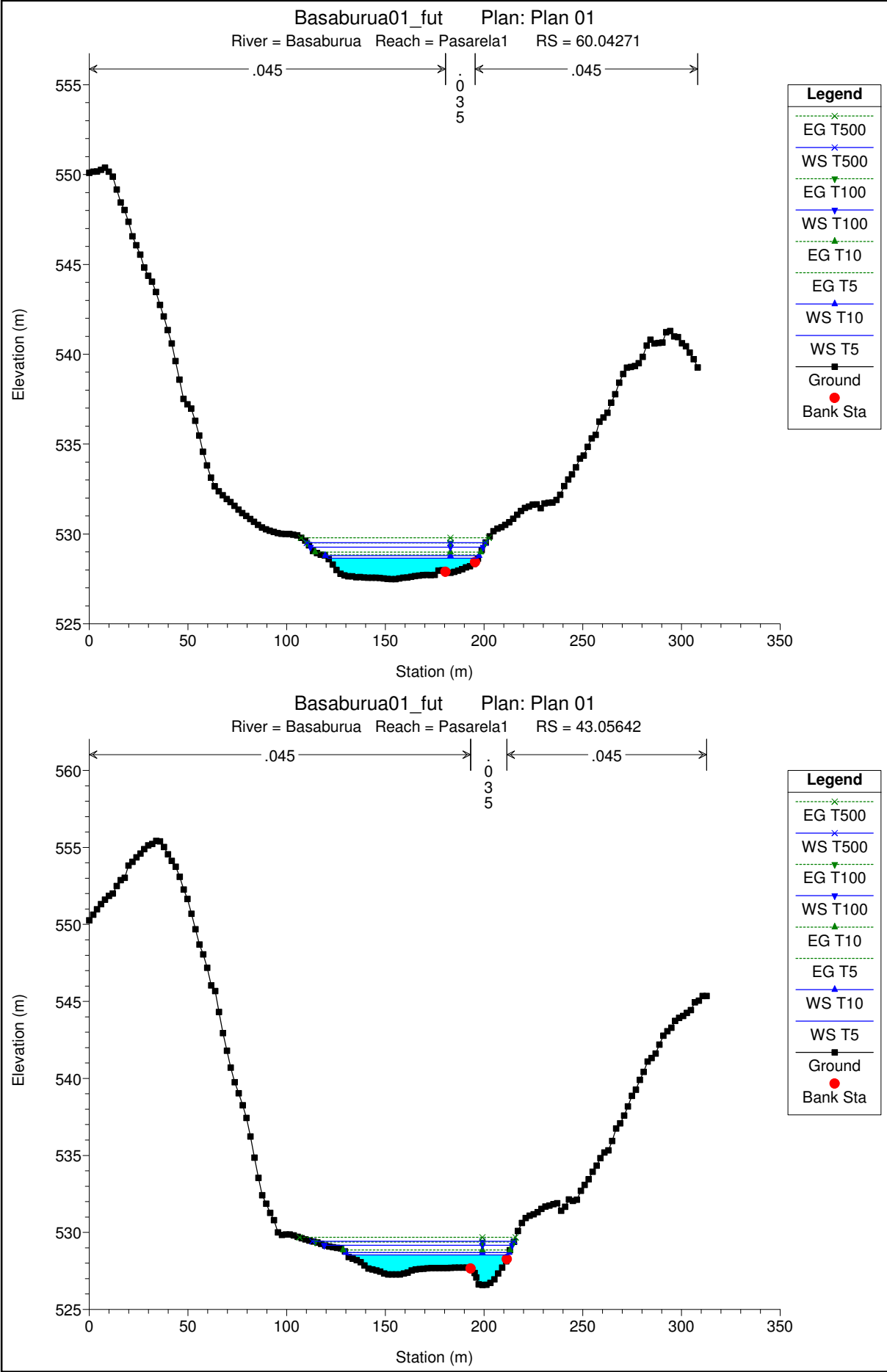


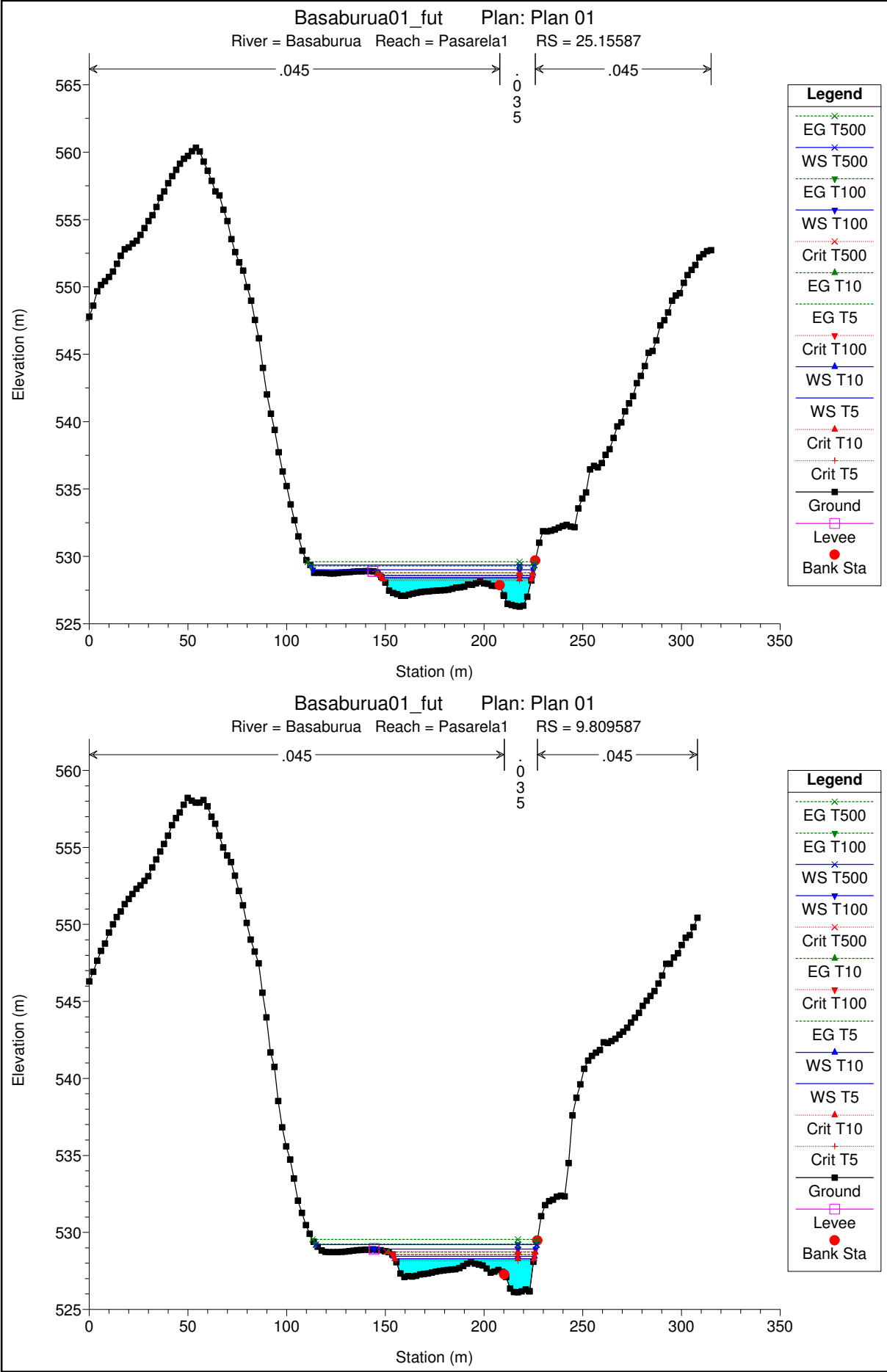




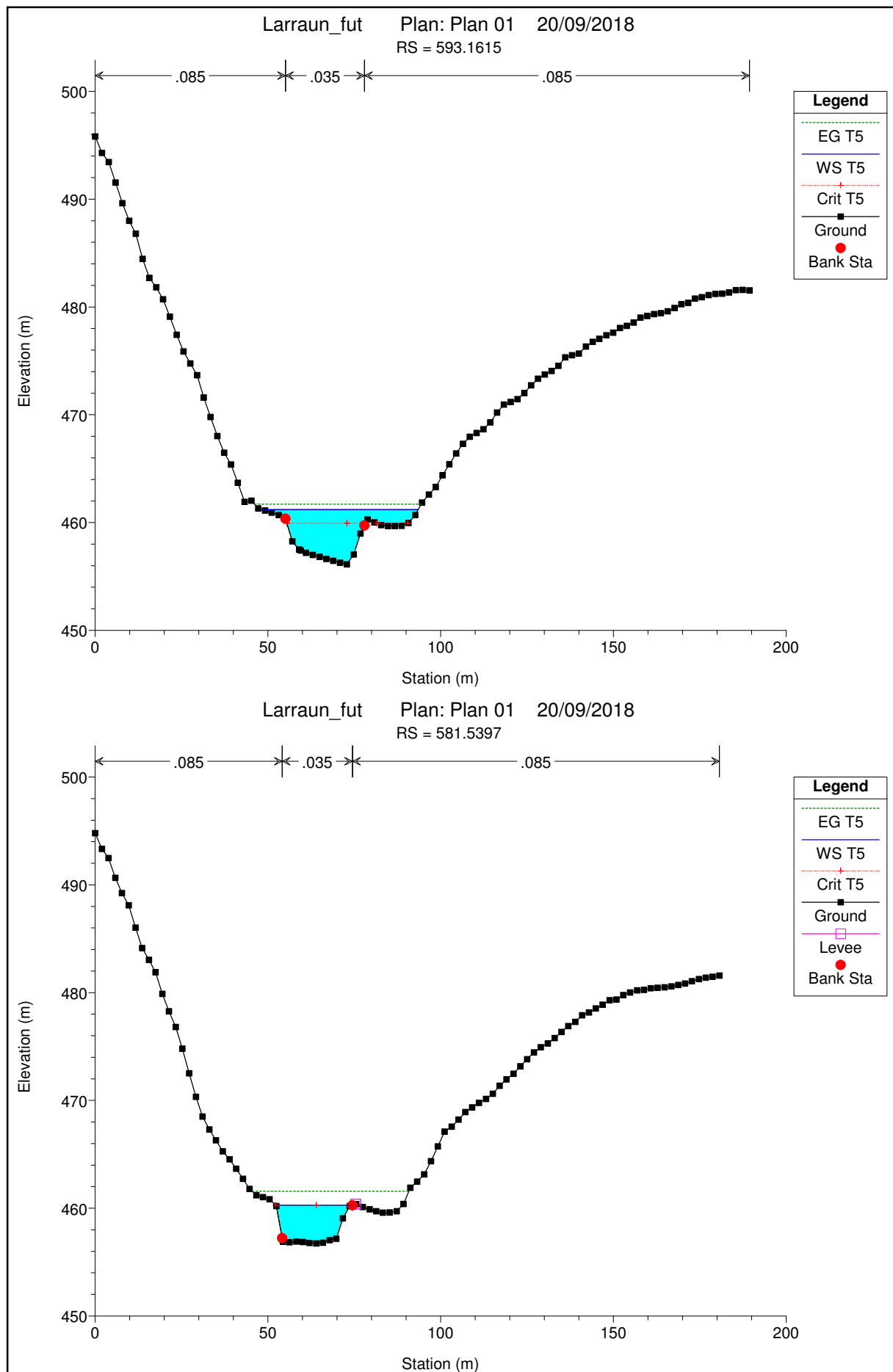


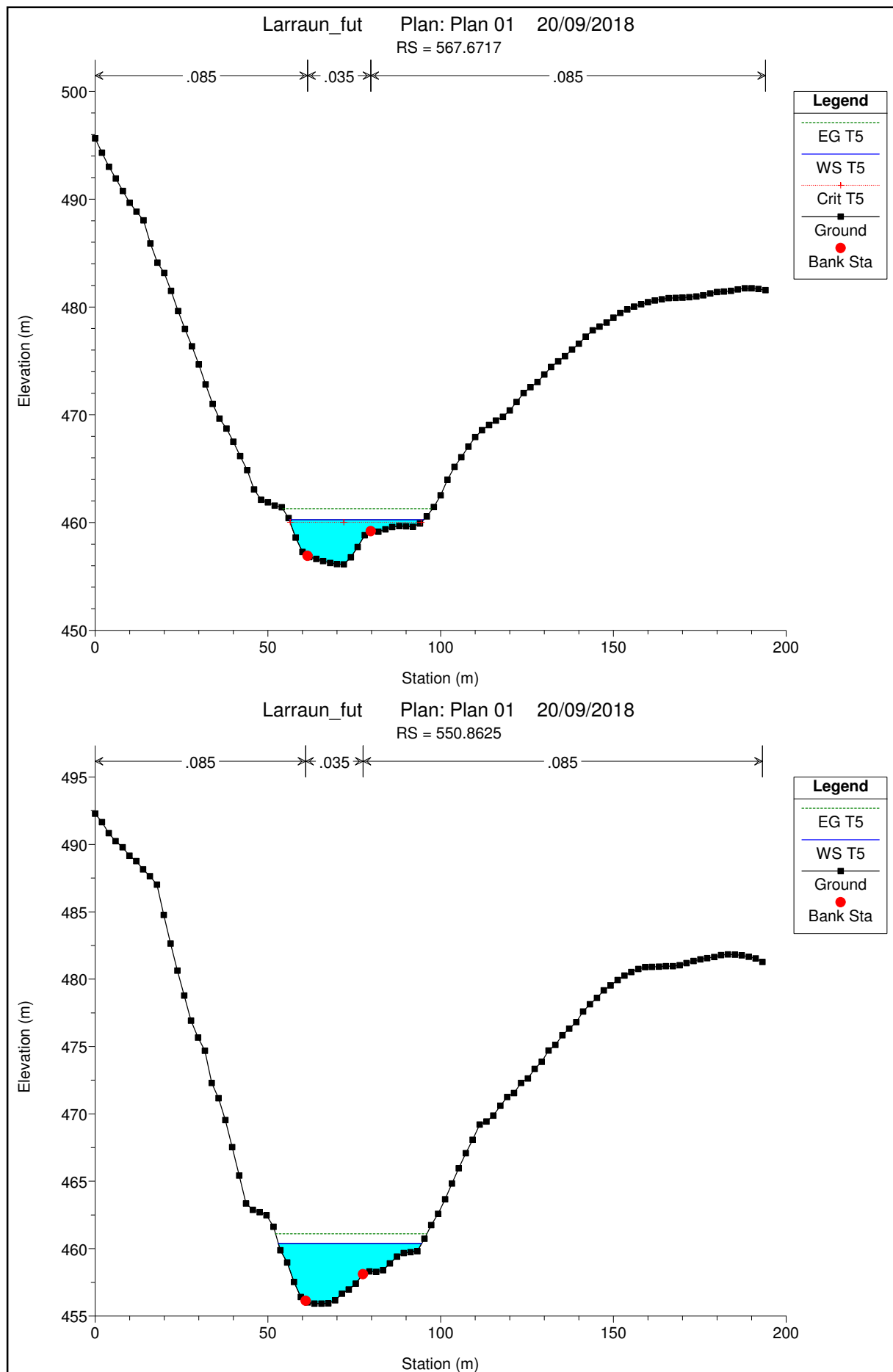


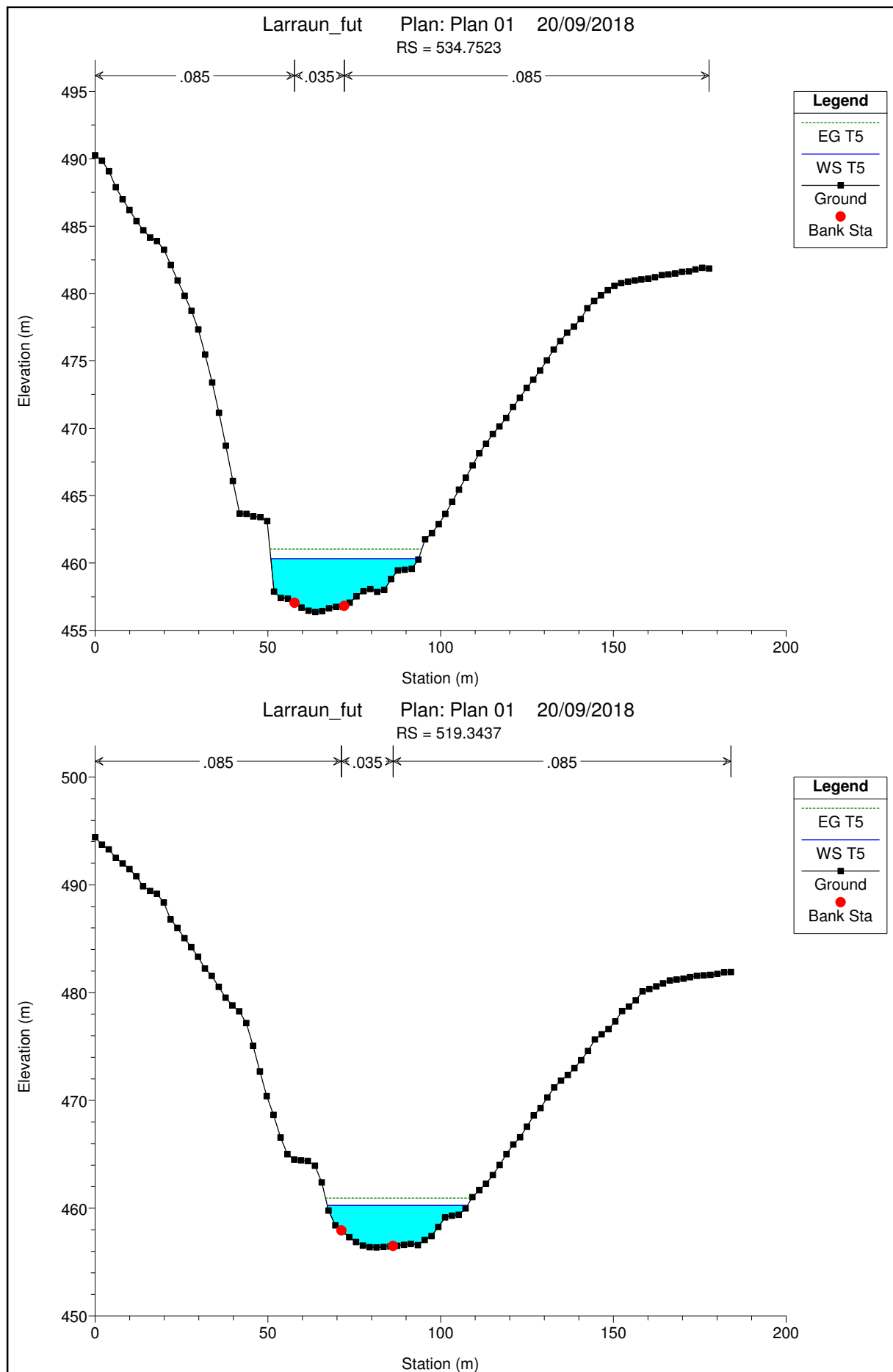


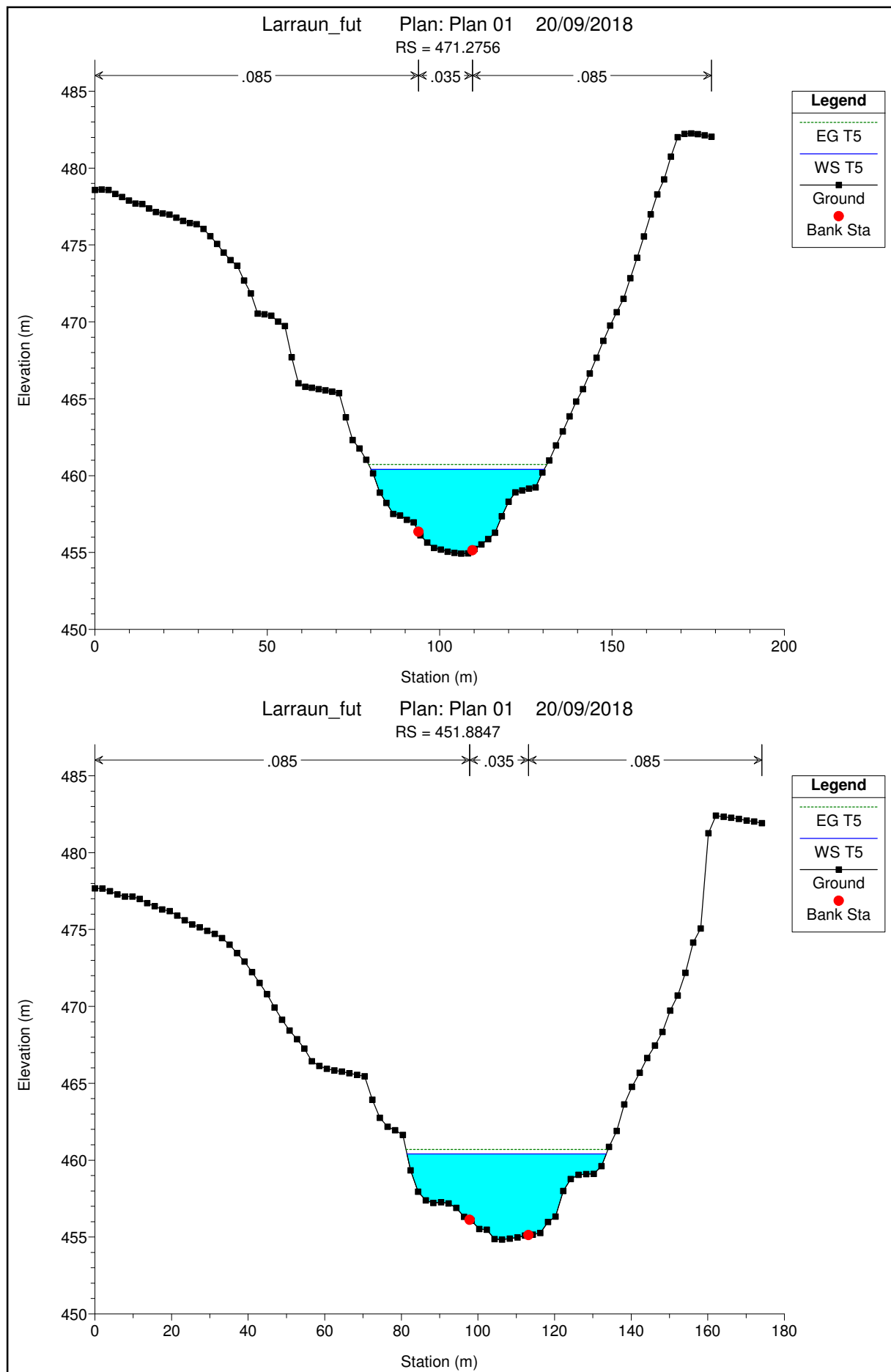


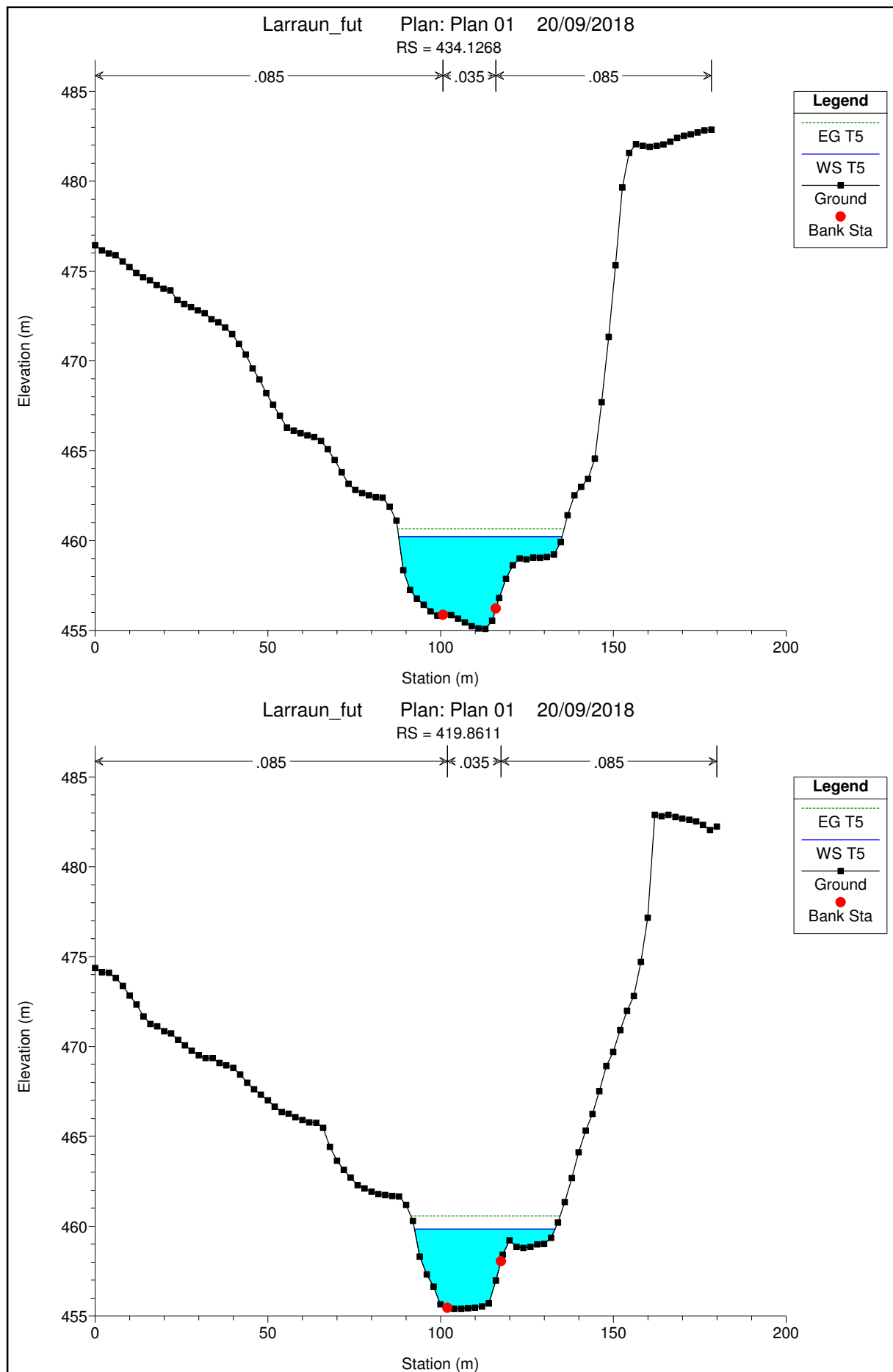
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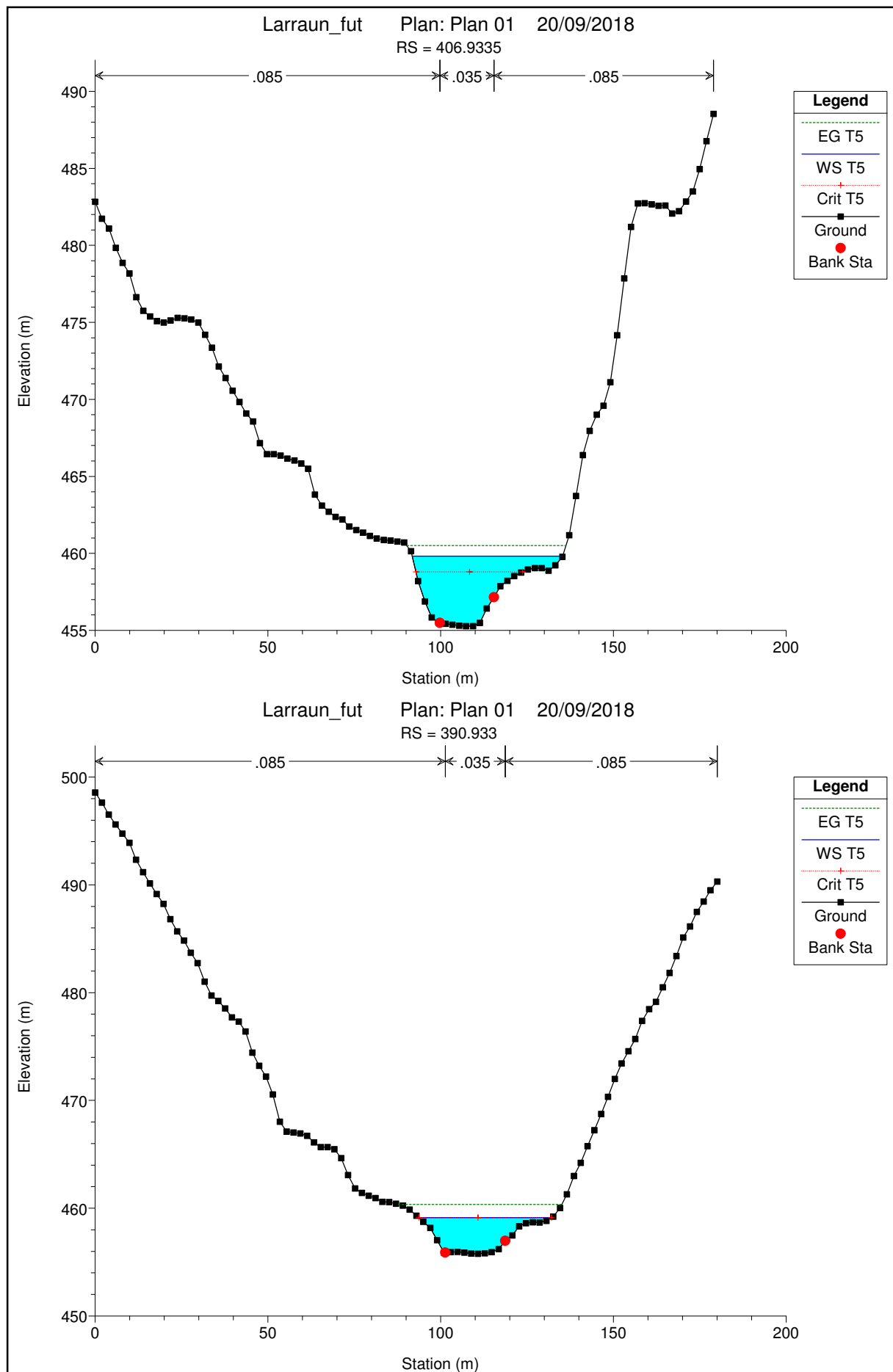


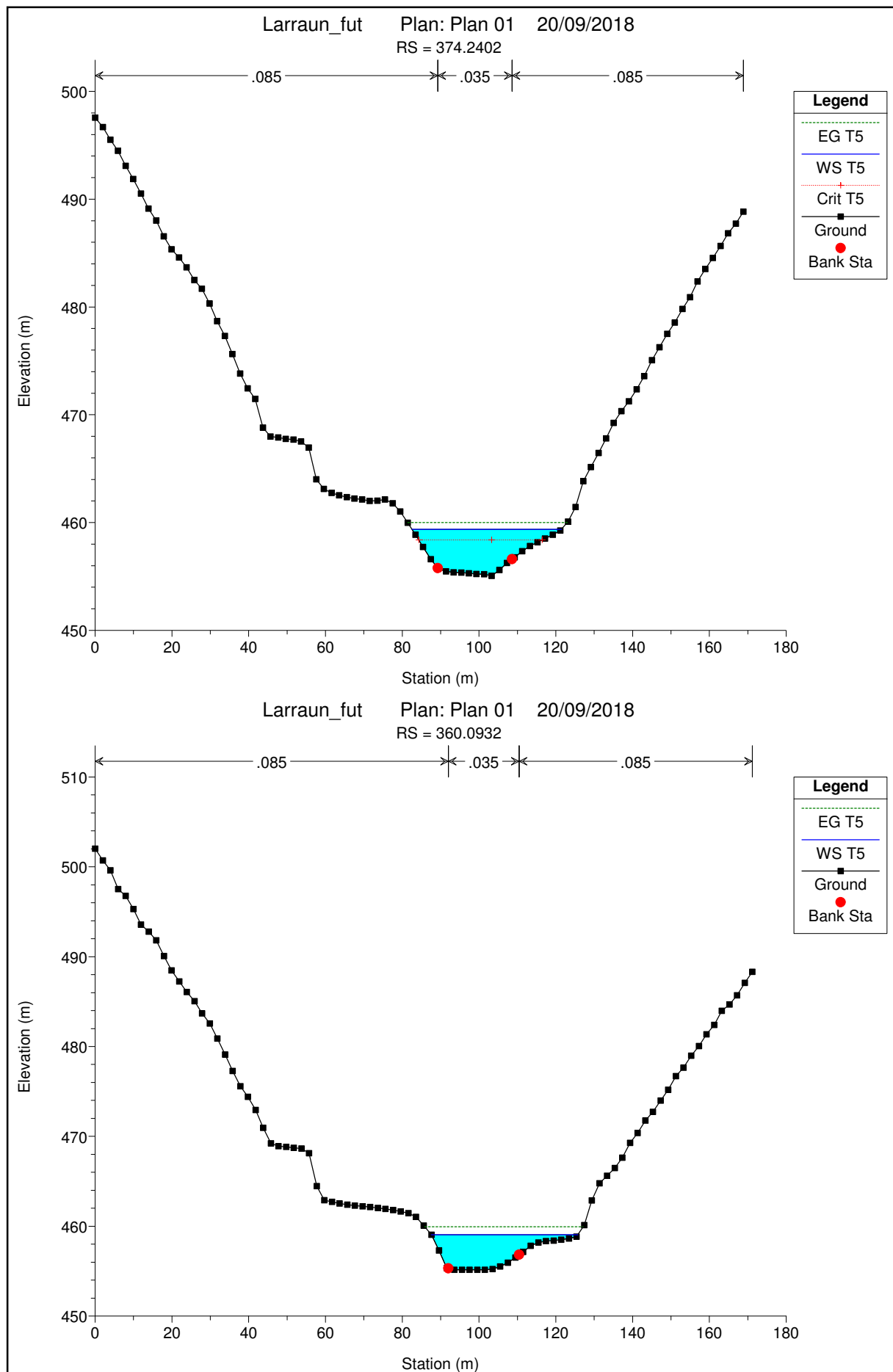


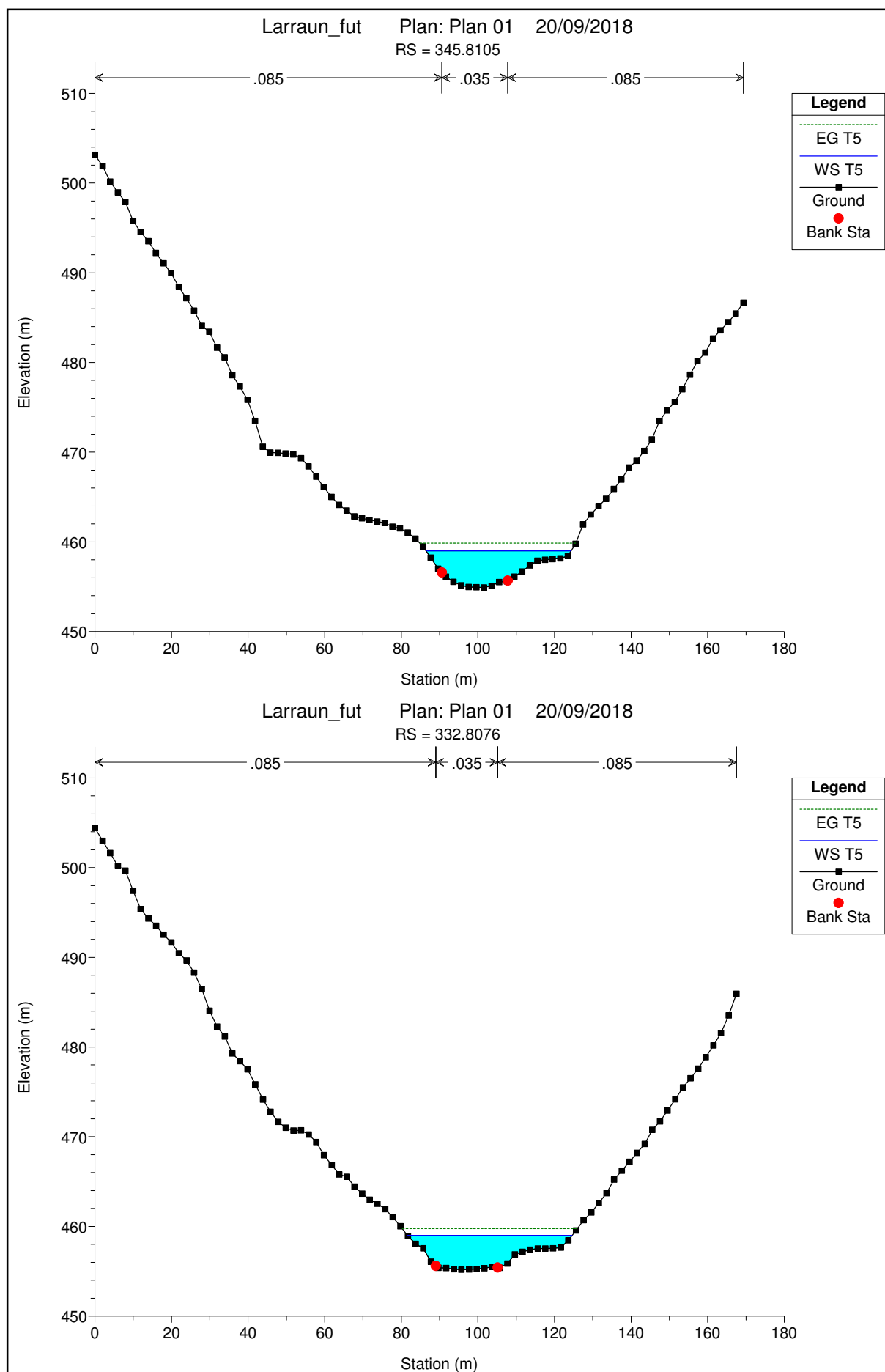


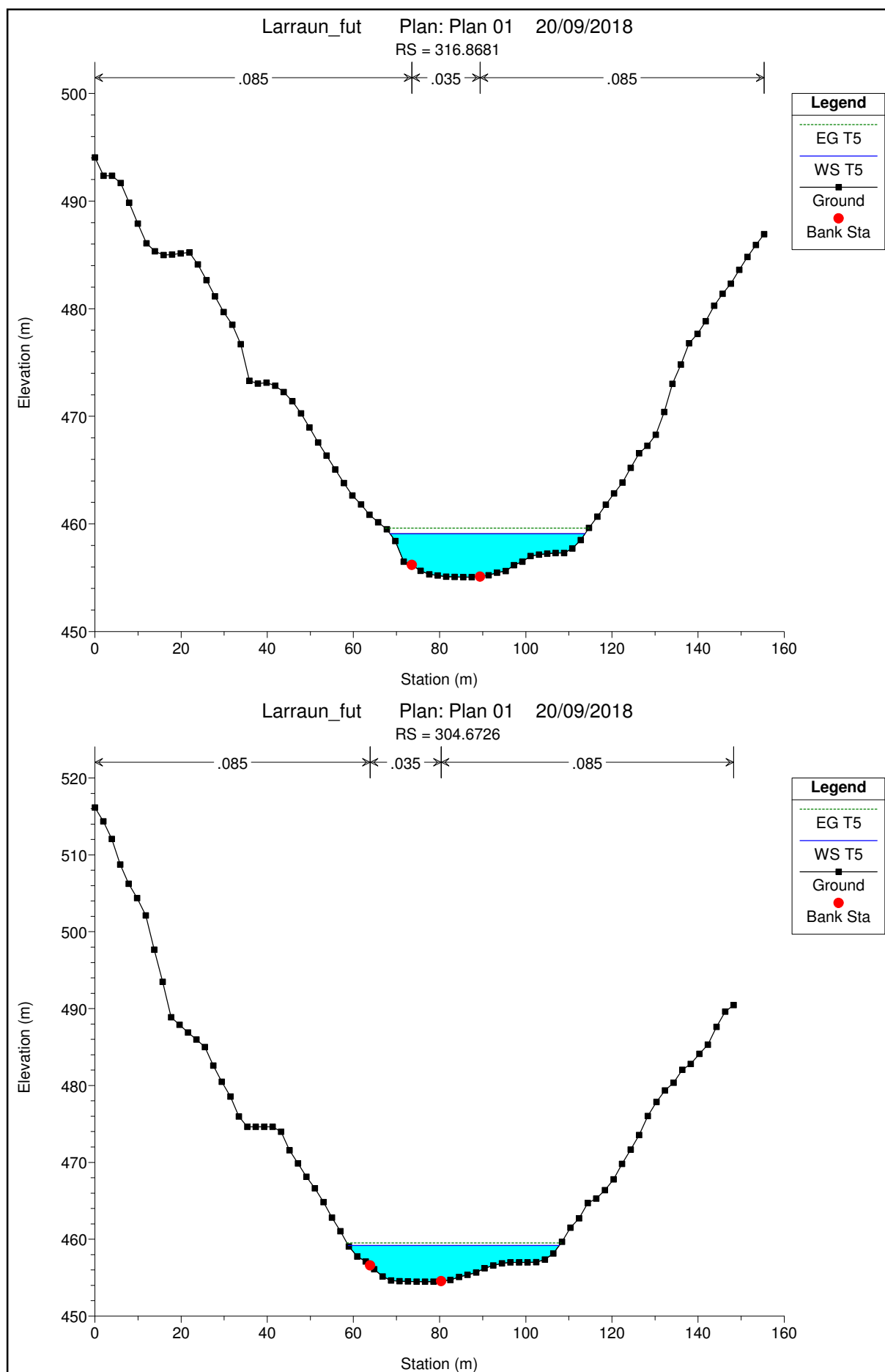


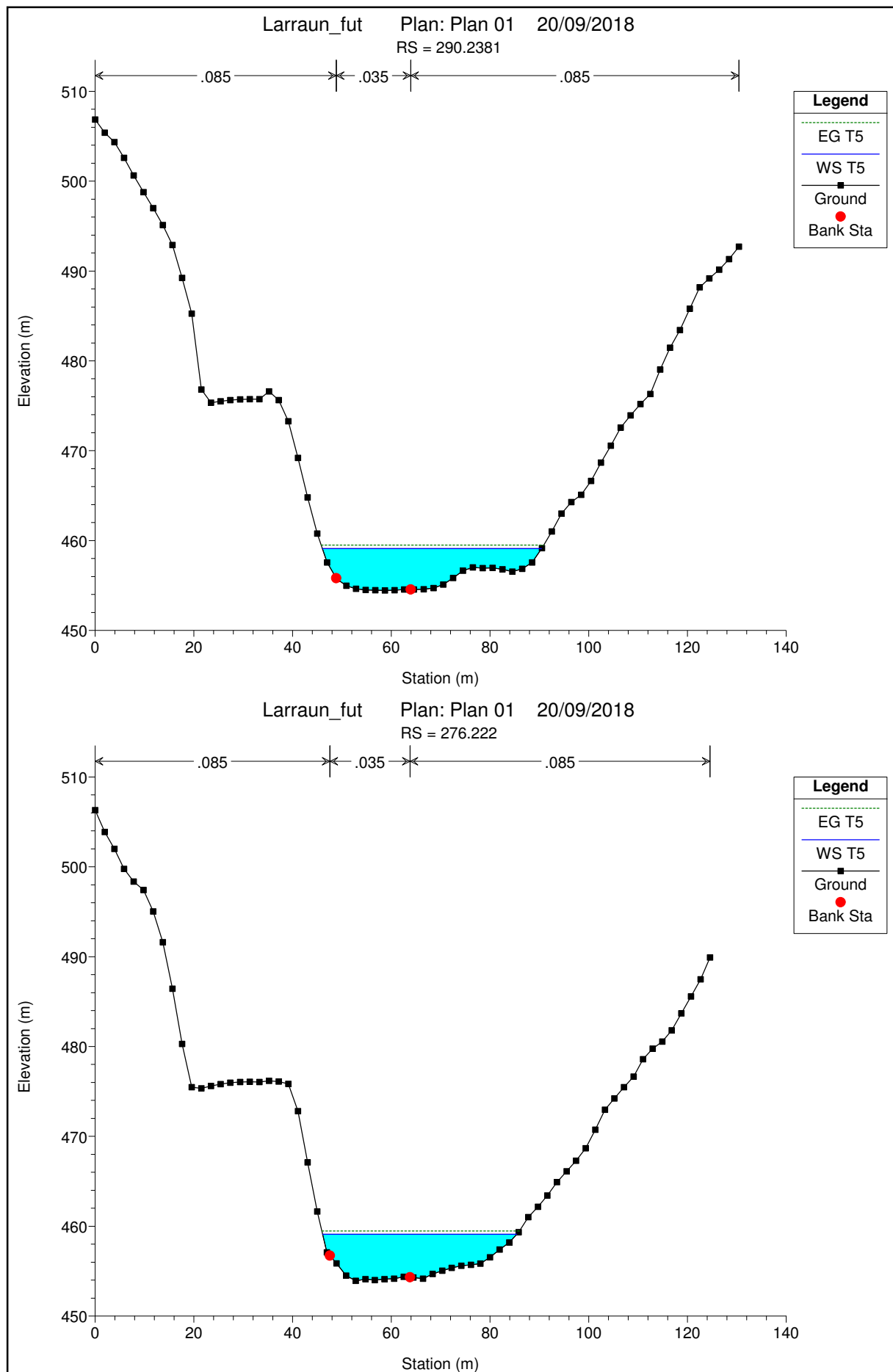


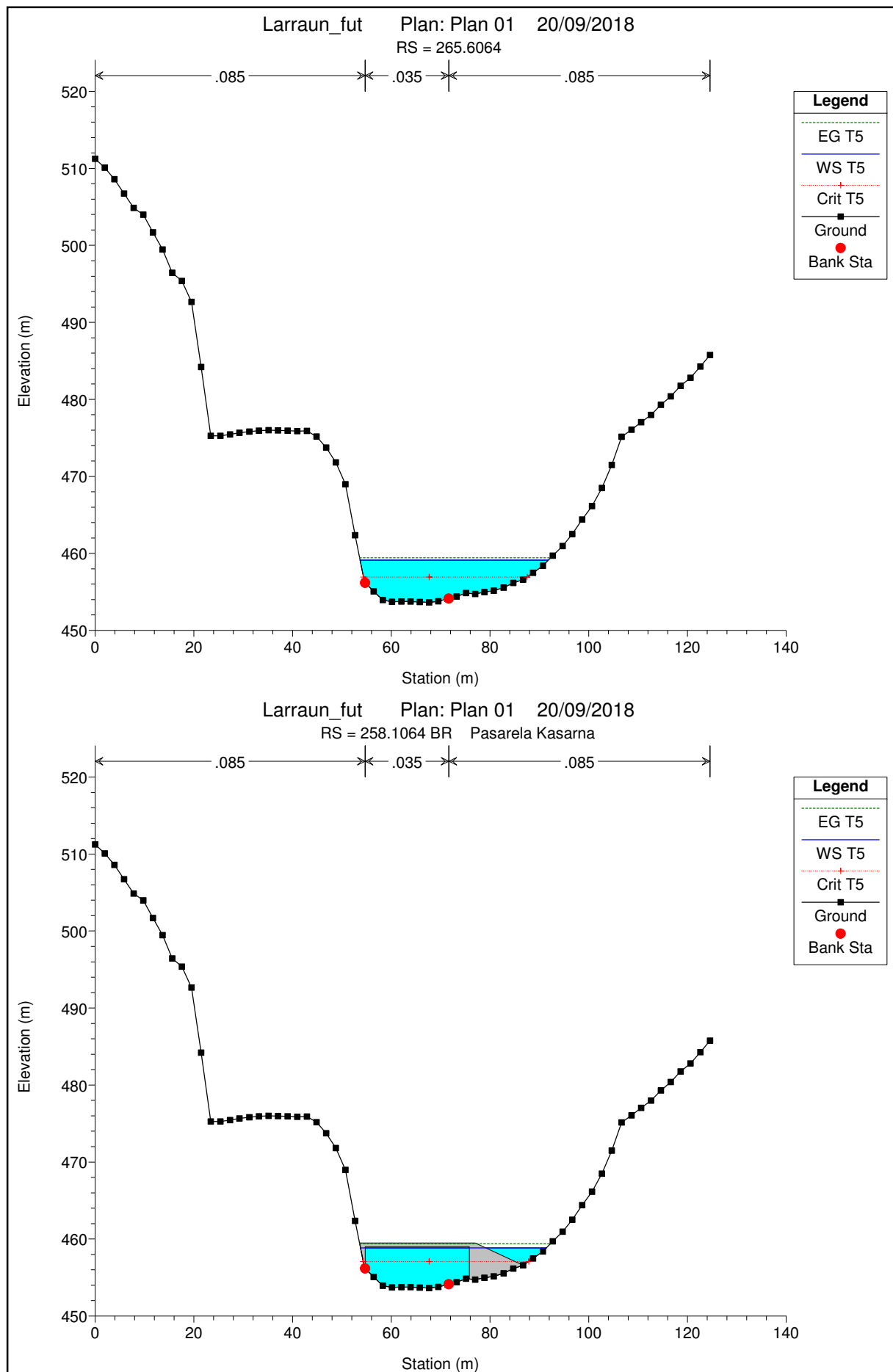


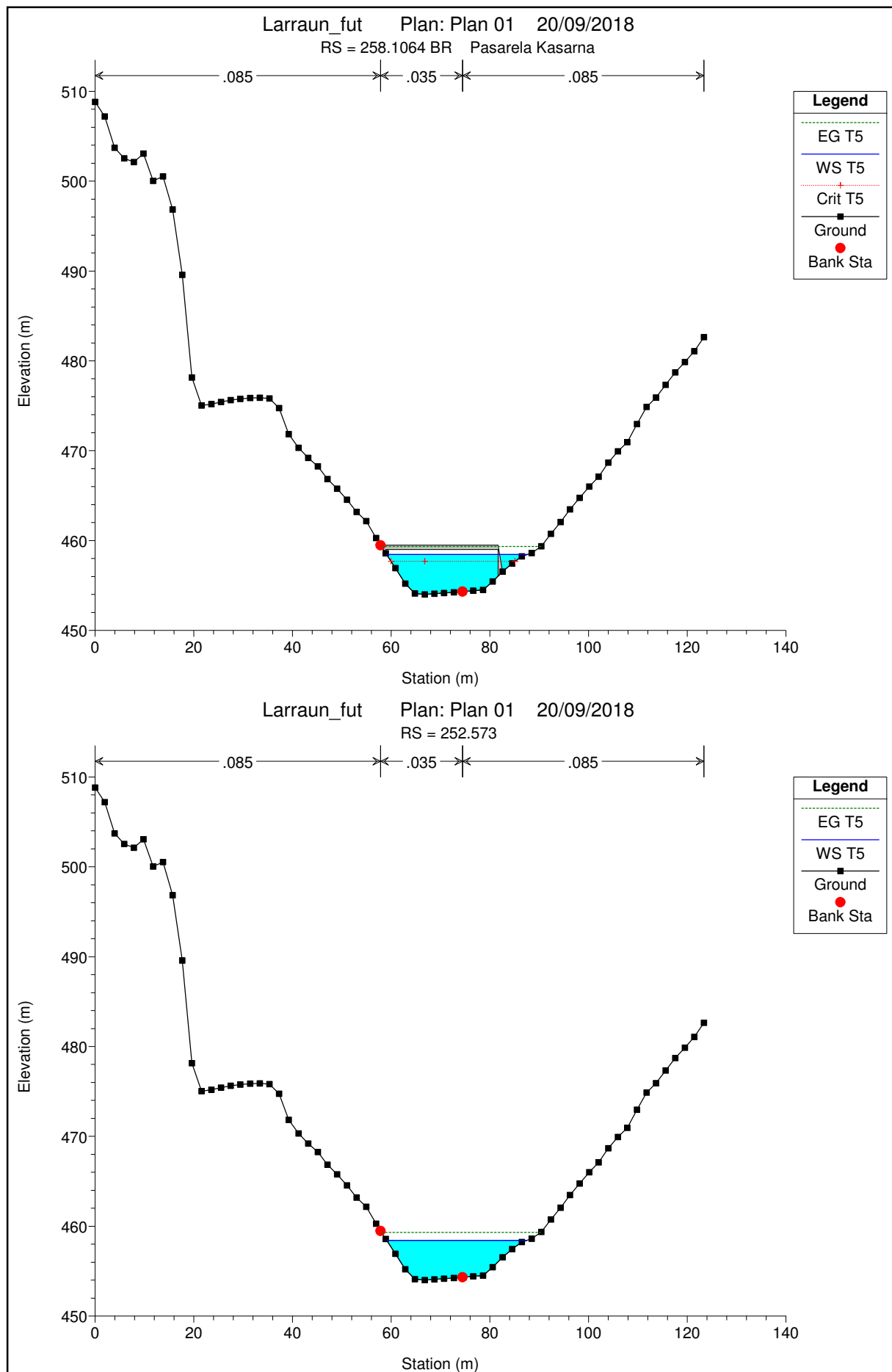


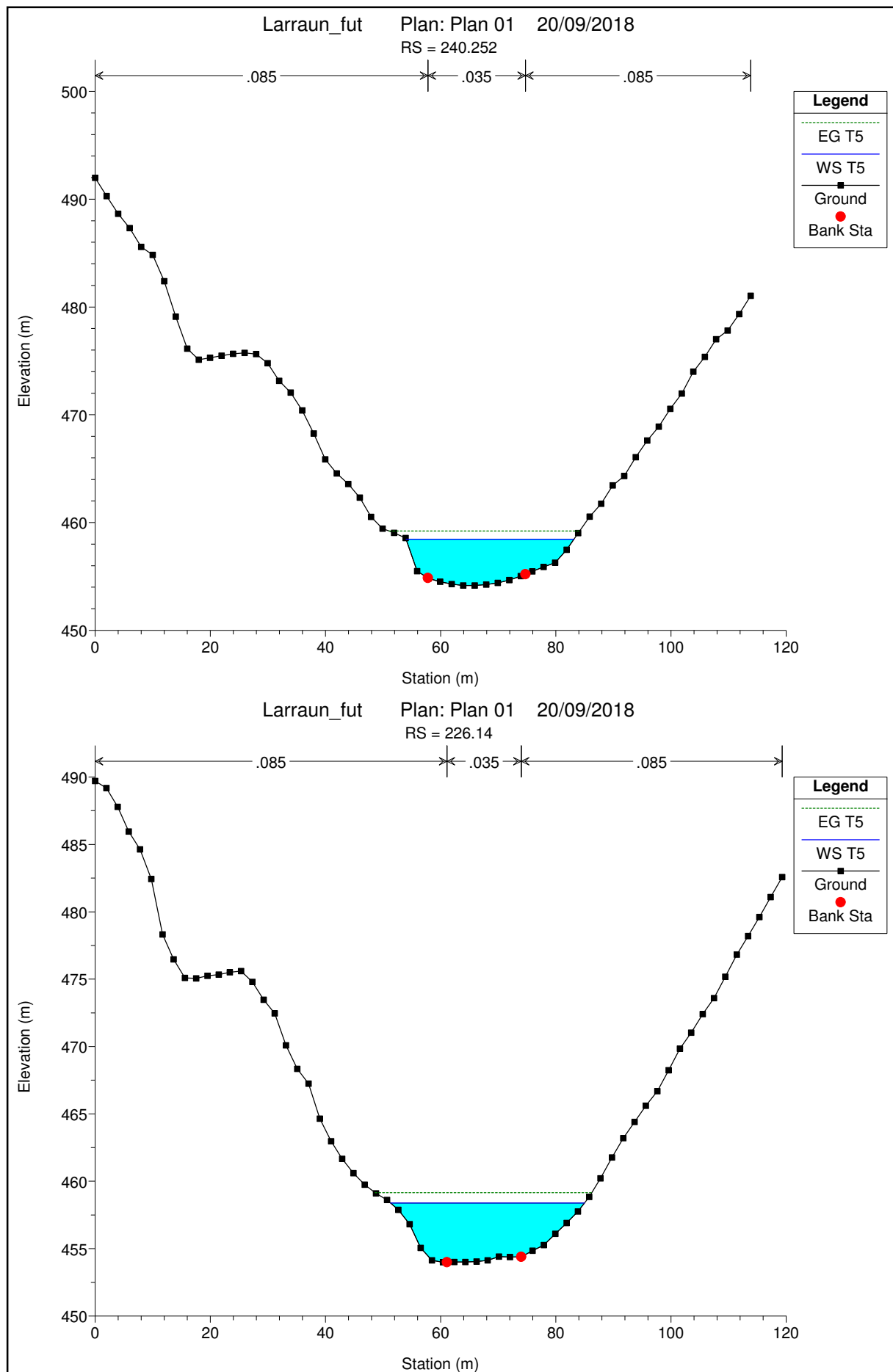


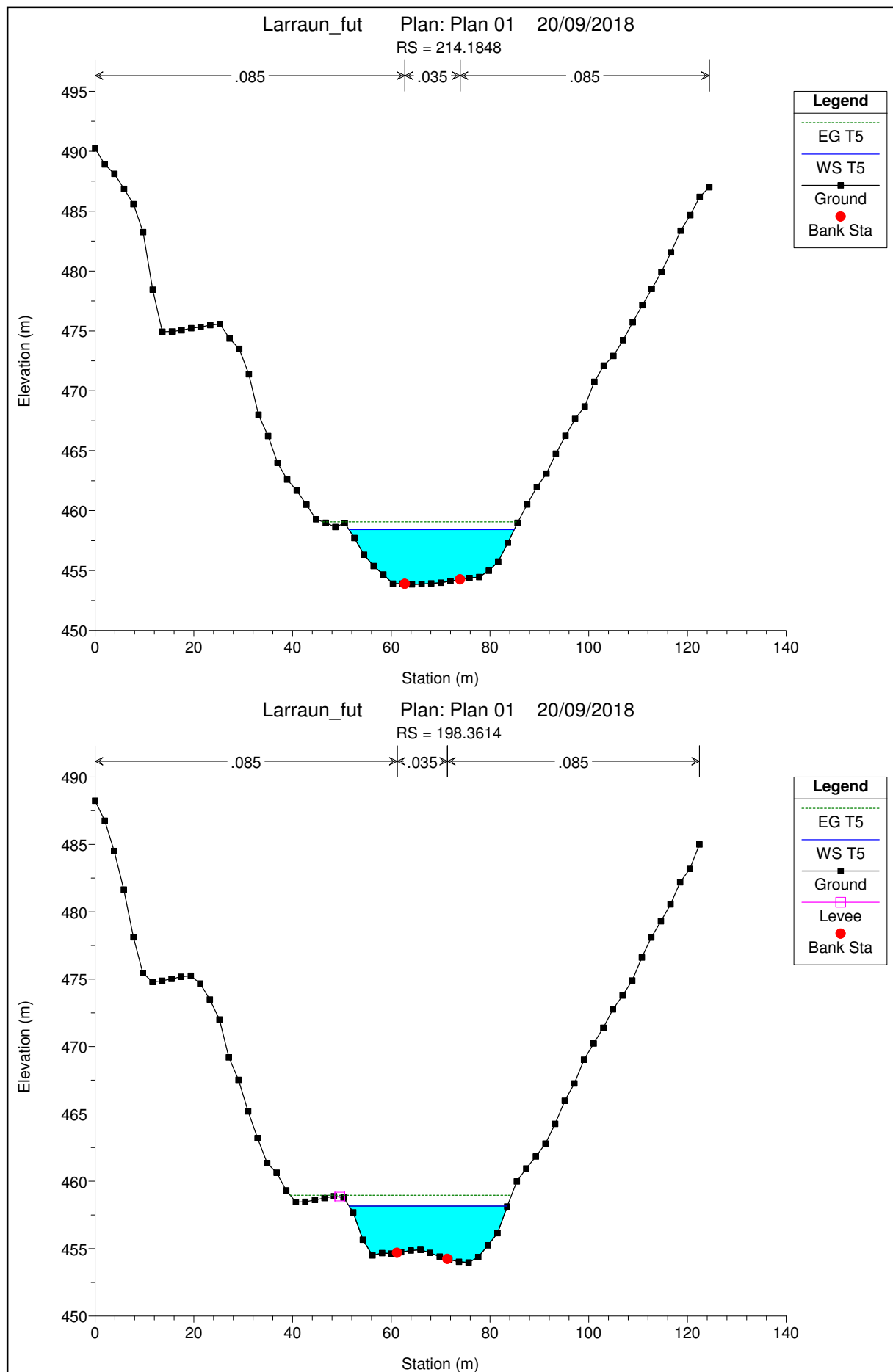


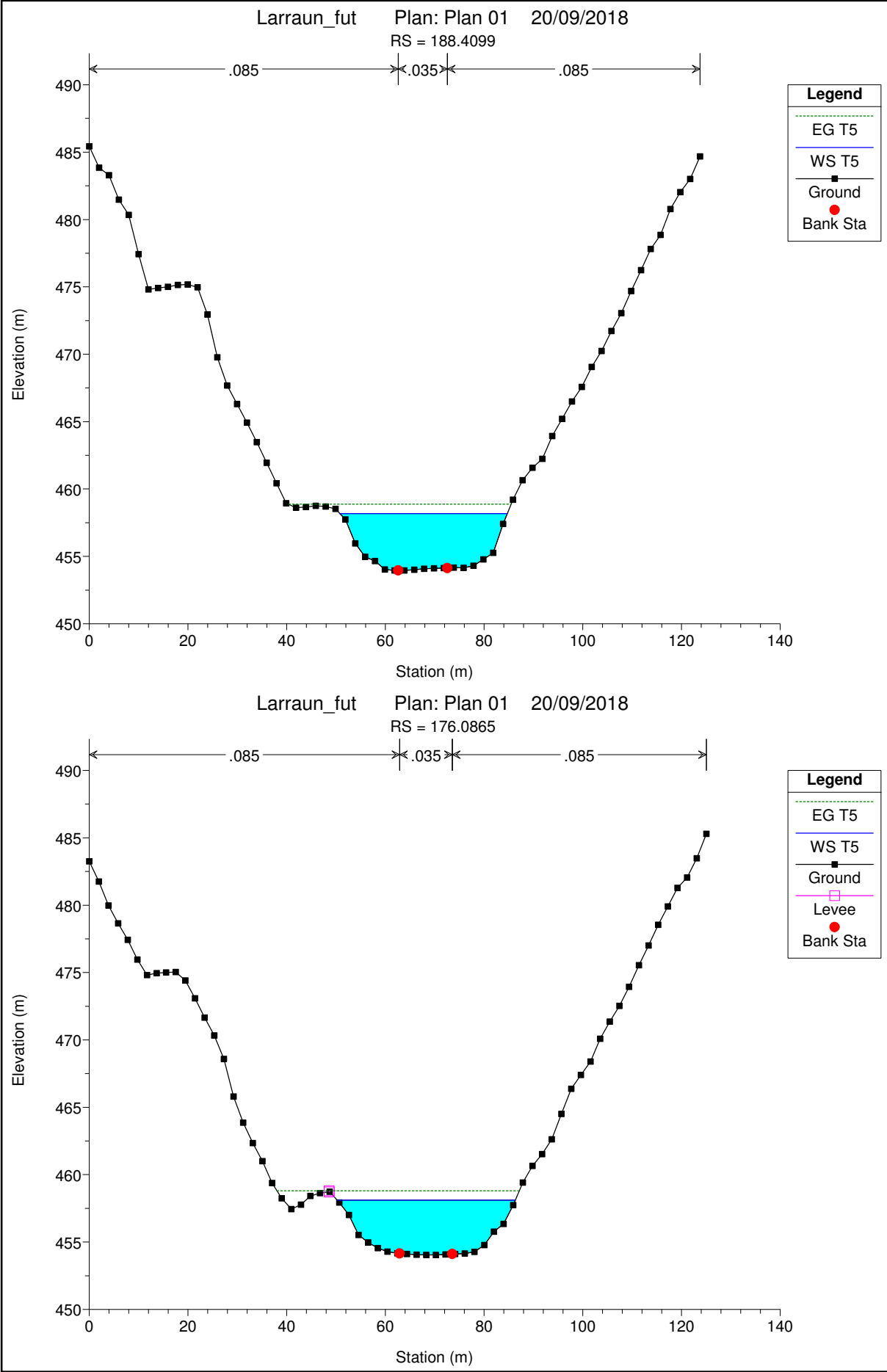


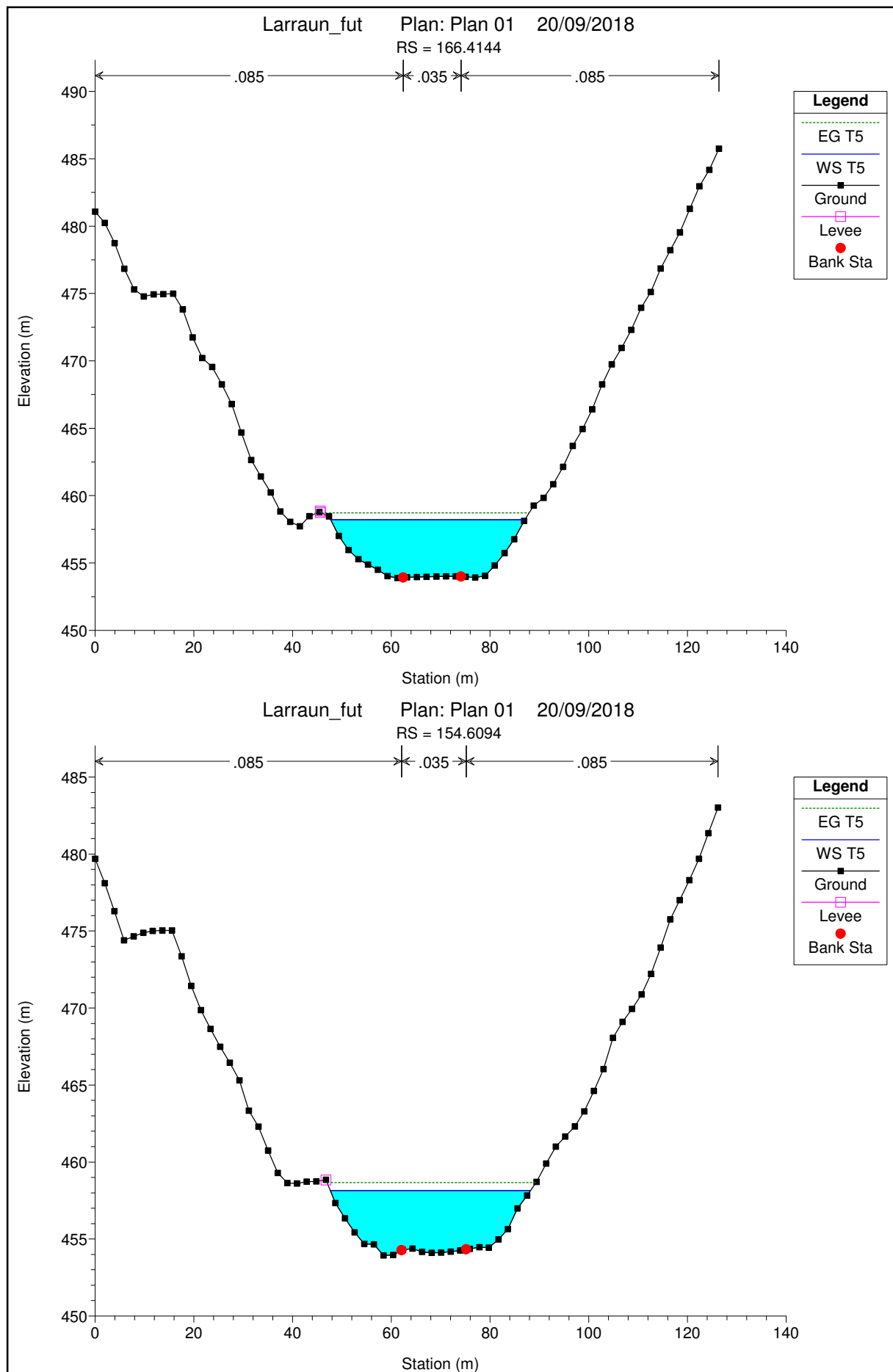


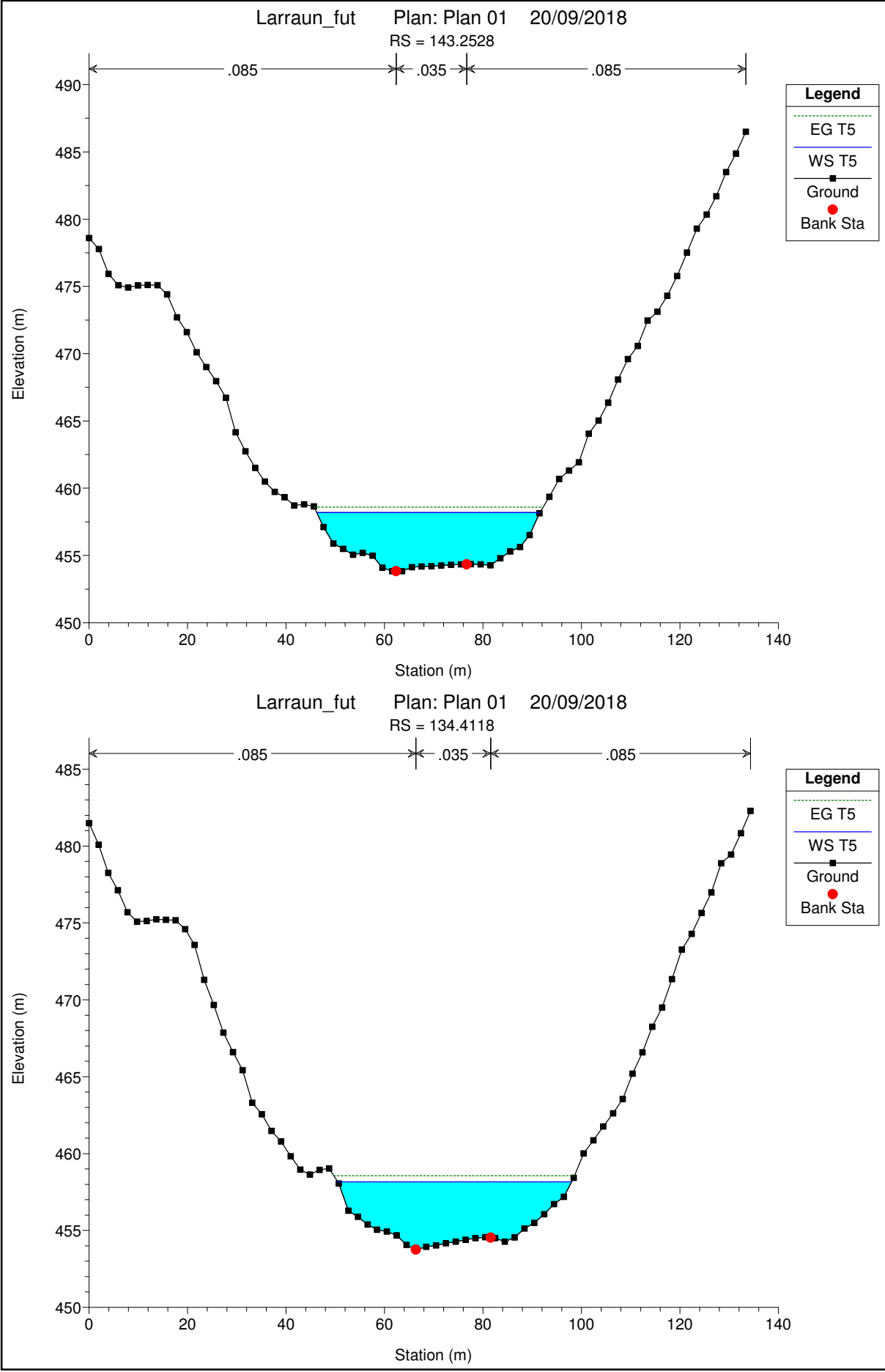


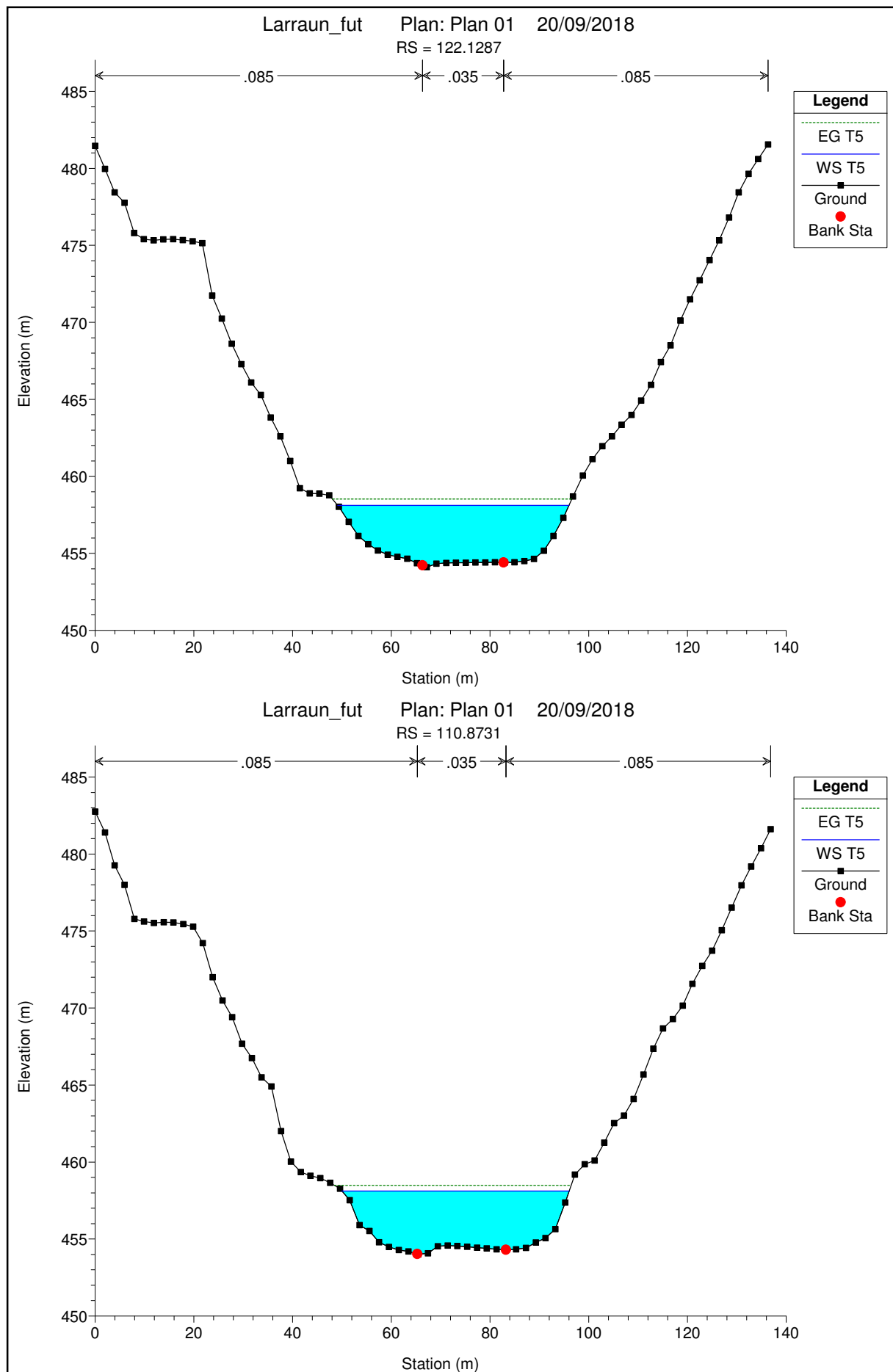


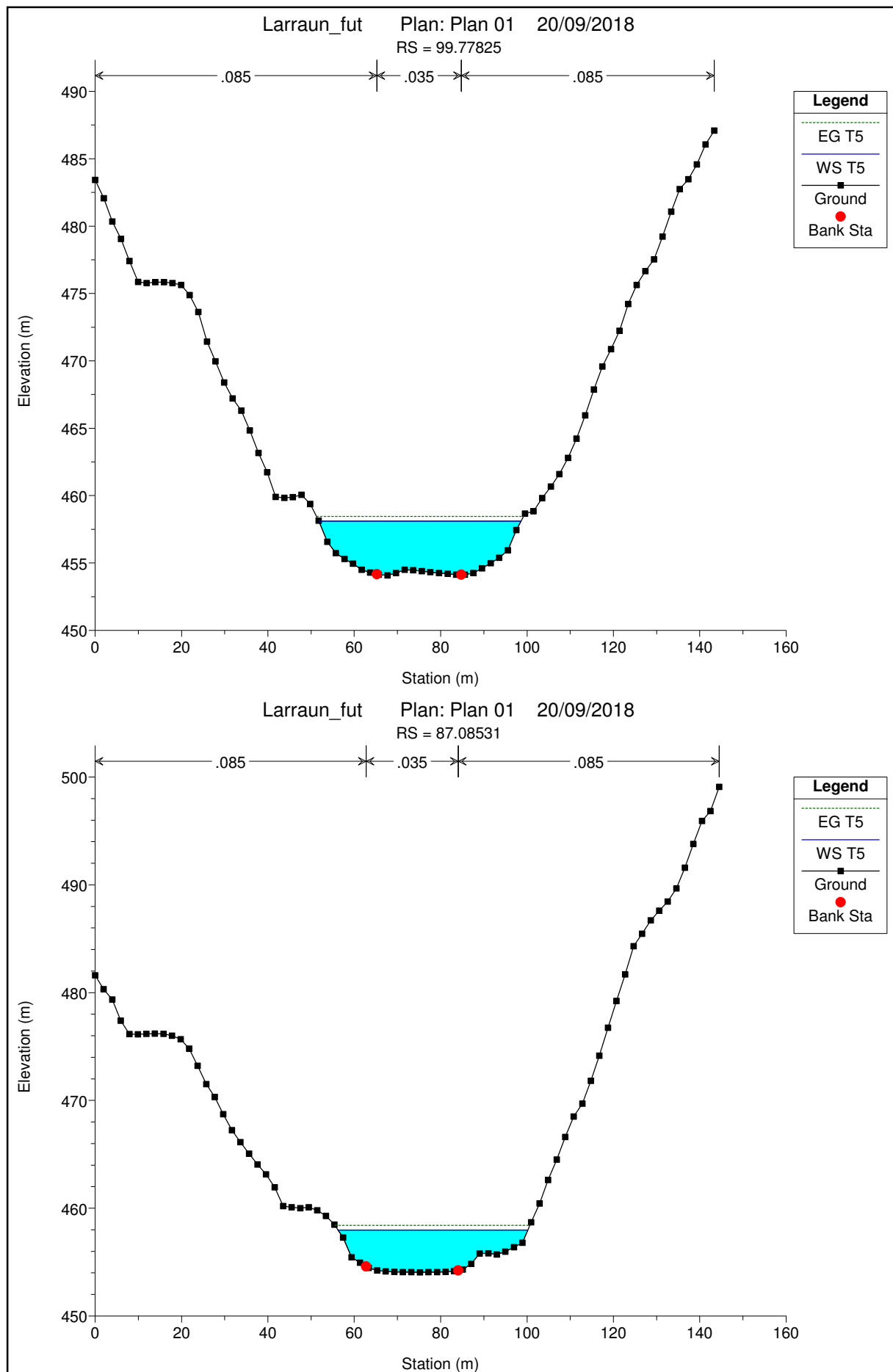


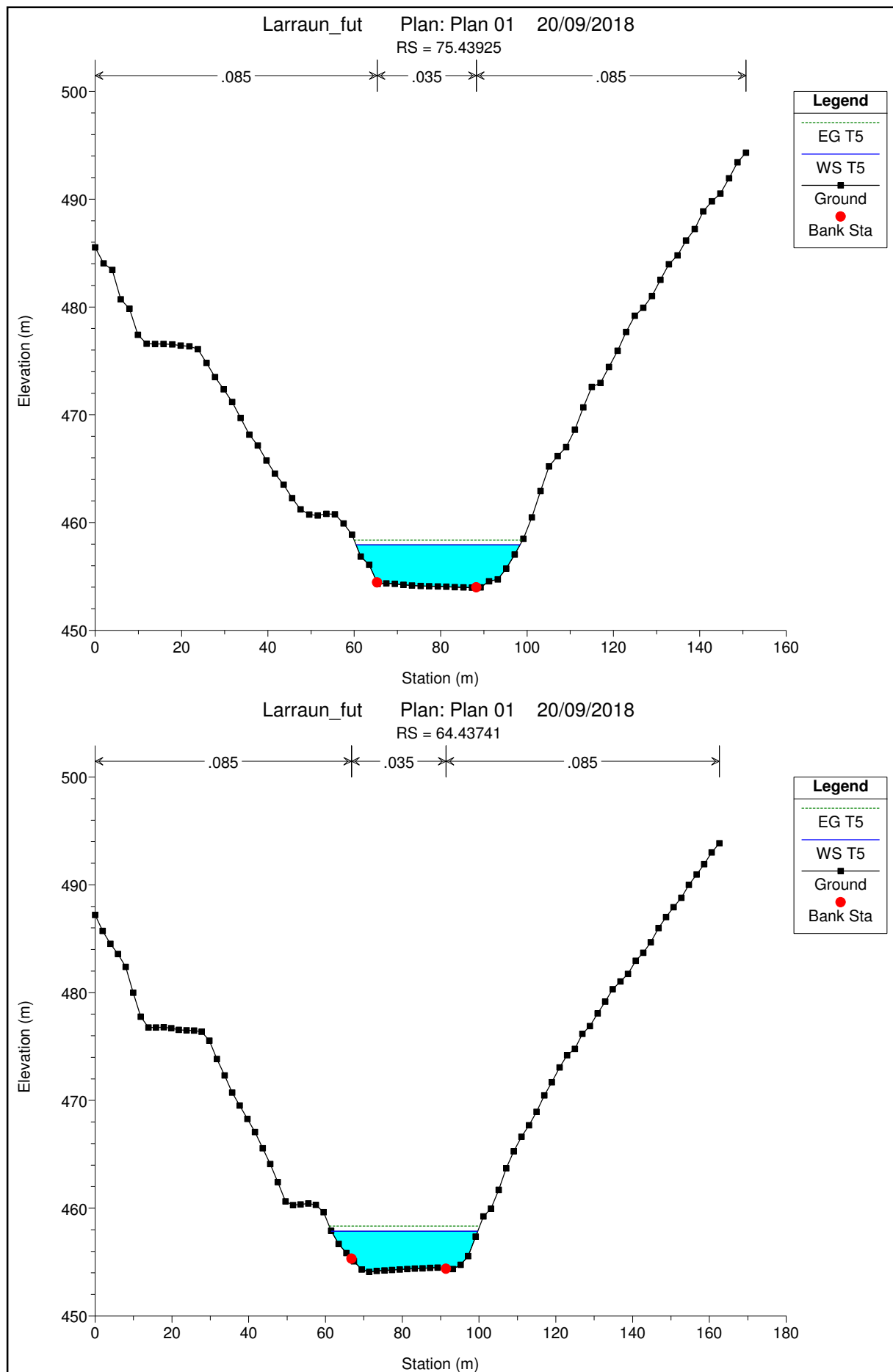


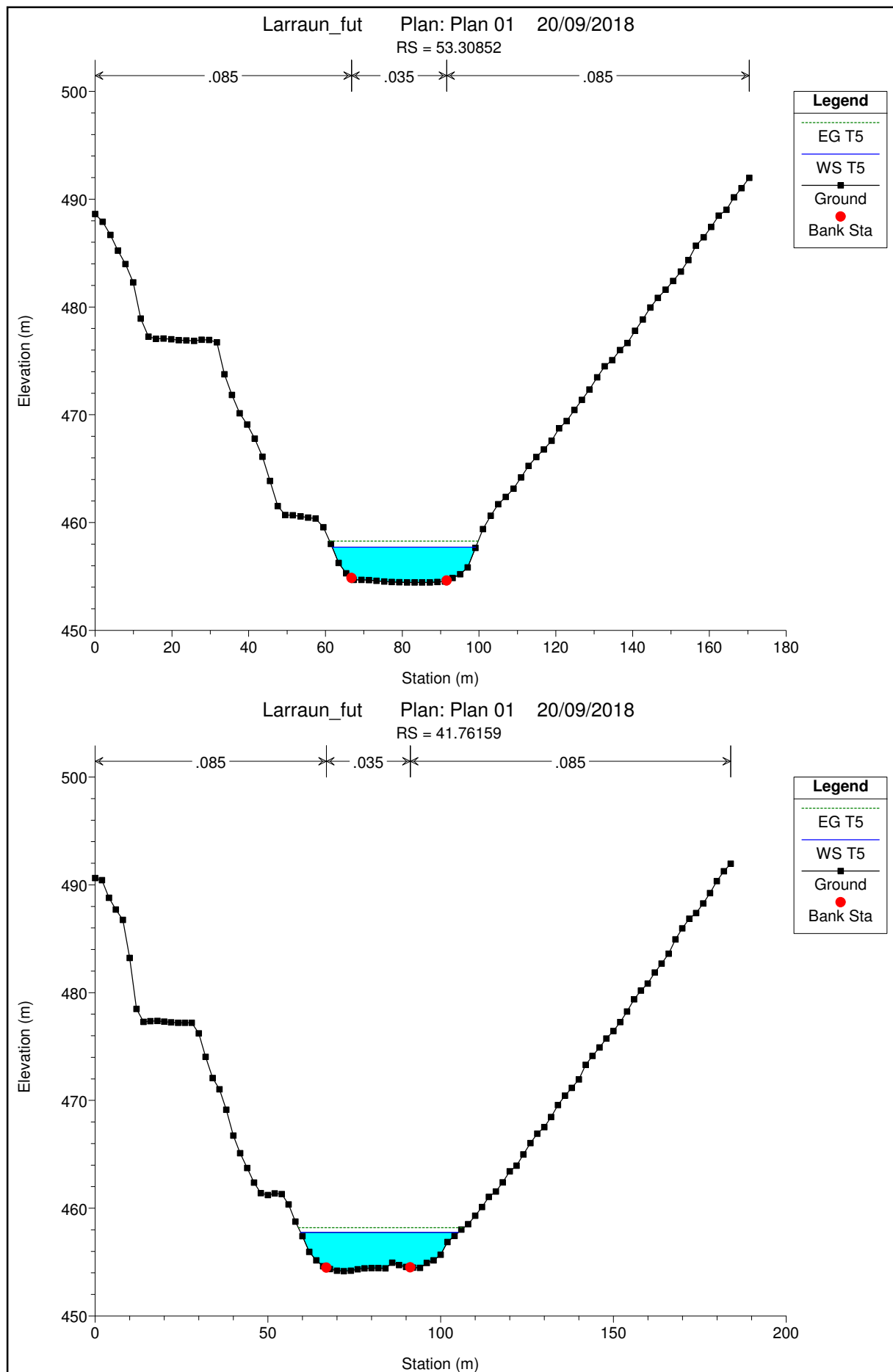


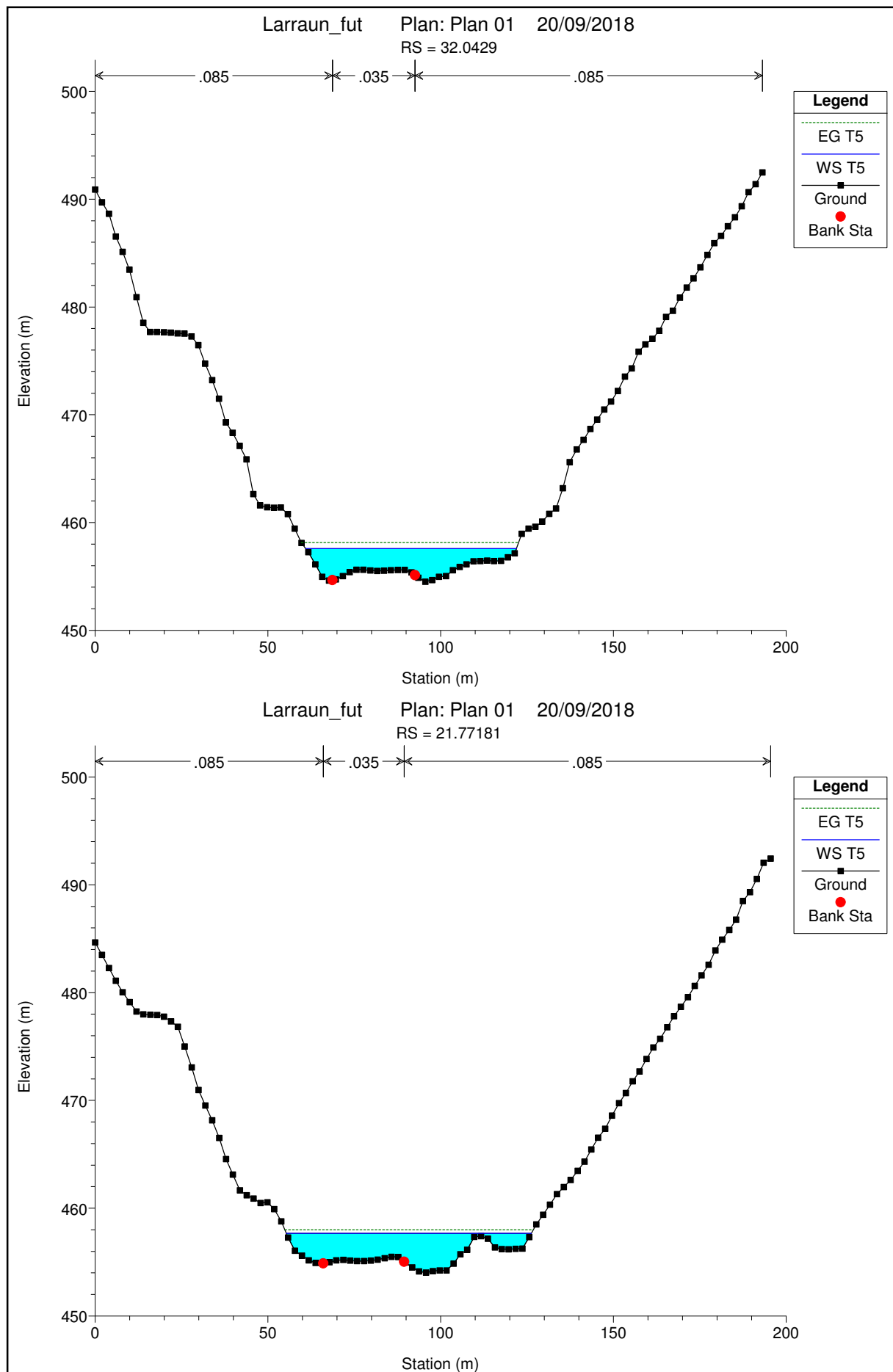












Larraun_fut Plan: Plan 01 20/09/2018
RS = 7.087183

