

PROGRESS MEETING MINUTES

Basin 4100 and DFA 0056 OSP
Monday, July 20, 2020
10:00-11:40 am Microsoft Teams

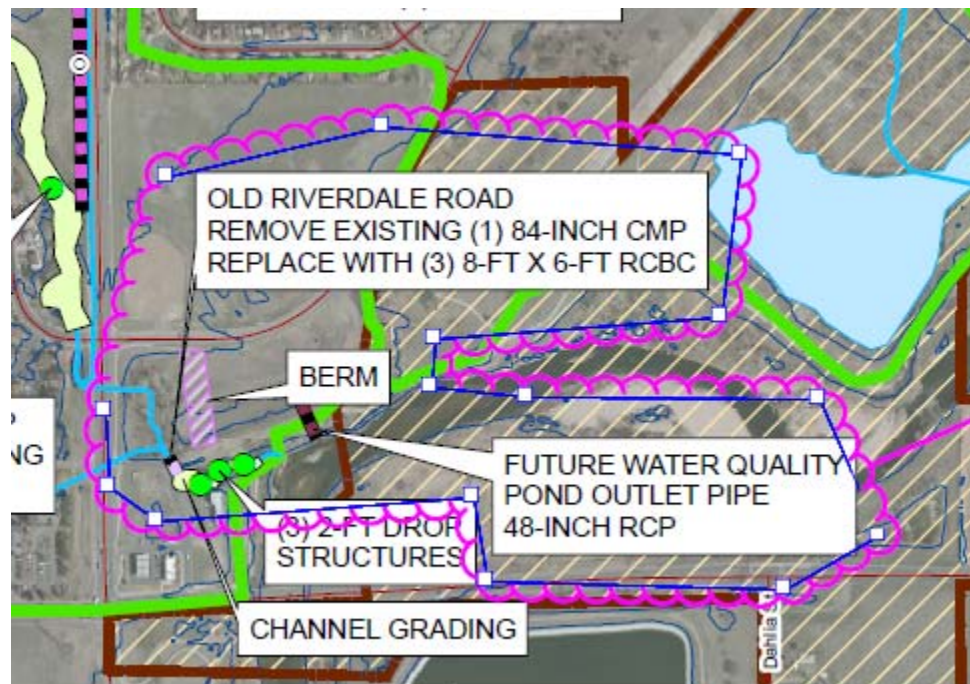
Name	Representing	E-mail
Dave Skuodas	Mile High Flood Control District (MHFCD)	dskuodas@udfcd.org
Jim Kaiser	City of Thornton (Thornton)	Jim.Kaiser@cityofthornton.net
Rachelle Plas	Thornton	Rachelle.Plas@cityofthornton.net
Russ Nelson	Adams County	RNelson@adcogov.org
Amy Gabor	Olsson (Olsson)	agabor@olsson.com
Deb Ohlinger	Olsson	dohlinger@olsson.com
Hannah Pring	Olsson	hpring@olsson.com

Discussion Items:

The meeting was held to discuss the conceptual design and report and direction for completing the project. While this summary is not intended to represent a comprehensive account of the meeting, it is intended to reflect the key points raised and issues for further consideration and to identify the action items resulting from the discussions.

1) Drainageway 4100-1: Old Riverdale Road Crossing

Jim Kaiser, PDF page 11: Existing water line lowering and possibly the width of the receiving channel will not accommodate a 28-foot wide structure. Consider lower invert to provide head to a single large box (10x7(?)) at the existing culvert location. Berm to maximize "low flow" culvert capacity. Spill to east for a secondary outlet that goes UNDER the eastern reach of the waterlines. Significant head available to reduce needed size.



- See Old Riverdale Road attachment for mark ups with conceptual design to discuss.
- The future Police Training Facility is no longer considering this location for water quality in the design. The water quality portion of the conceptual design will be eliminated. The concept will remain as is.
- Additional information will be added to the map to articulate what is shown, so that it is clear without having to reference the text that the goal is to avoid the water line, potentially add a berm with a spillway that would engage in higher events in order to maximize the head on the existing culvert, and that the additional pipe is being added to handle a 100-year event.
- Additional information will be added to the report suggesting that the current configuration is one option, and changes will likely occur during design. The berm will be shown as a potential area for project spoils and will not be included in the cost estimate.

2) Drainageway 4100-1: Old Riverdale Road Detention

Rachelle Plas, PDF pg 431: Why was the cost of the pond and berm not included?

- Water quality cost was assumed to be development related. The water quality only serves the development, and the berm is related to separating the water quality pond from the main drainageway. The floodplain in this area was evaluated for both with and without the berm since it would not be a formal levee.
- As discussed above, the water quality pond will be removed from the conceptual design and the berm will not be included in the cost since it will be shown as a potential spoil area.

3) Drainageway 4100-1: Colorado Agricultural Ditch Crossing

Jim Kaiser PDF pg 63: The Colorado Ag canal goes under the thalweg in a siphon; this "crossing info" must be a carryover from the previous MDP. That said, the trail crossing that goes "through" the siphon is a 1 36" (?) RCP on a sharp skew; making it a fairly long pipe. This should be updated in the table, if not the model, too. See photo 2020 07 09_092206

- The existing structure information is based on survey information. The original information provided to Olsson was for the Colorado Agricultural Ditch crossing, and not the drainageway crossing, see attachment "Crossing F. Thornton resurveyed the area and provided the updated survey, see attachment "Crossing F – Corrected". It reports dual 18-inch RCPs crossing underneath the canal. However, it appears that this information may be incorrect. When zoomed in on the photographs, it appears that the pipes may actually

be 30-inch RCPs. See Surveyor's photo below. Olsson confirmed during a site visit that the crossing is dual pipes. The size was not verified by Olsson during the site visit.

- Verify size?
 - Thornton will look for as-built information on this crossing, re-measure the size, and survey the trail for overtopping elevation.
 - Olsson will remove the recommendation for the two 42-inch pipes.
- If size is incorrect update existing and conceptual design? Alternatives models and information will not be updated.
 - A statement will be added in the conceptual design to document the the pipe size and note that it changed from the alternatives. The full report will be updated with exception of the alternatives analysis section.



Surveyor Image – Crossing F Corrected



Olsson Image of Colorado Agricultural Ditch Crossing from Field Visit

J Tributary

Rachelle Plas, PDF pg 456: It looks like this has been done by the ADCO trail? Or did they not improve the culvert?

- Previous direction was to provide a size, if it is needed for future park improvements. Existing size is unknown. Will check with Adams County to see if they have records of this culvert.
 - Remove improvements from conceptual design since it has been built. Adams County will provide as-built information to confirm that it was sized for the existing flows and meets criteria.
 - Add information to the conceptual design regarding the peak flows through the pond in the lower J Tributary, to help plan for future park infrastructure.

4) North K Tributary

Rachelle Plas, PDF pg 456: Is this alignment selected due to the grades in the area? Was straight east after the diversion structure too flat?

- The alignment was evaluated during the alternatives analysis. An alignment straight east did not have enough cover over the pipe, as well as a potential conflict with an existing storm drain pipe (see report Page 38 for additional discussion). Text will be added to the Conceptual Design section to clarify why this alignment was selected.
 - There is also an Xcel ROW in this location that would make this alignment difficult. One goal of Thornton's is to keep the first flush / minor storms out of the basins.
 - Olsson will double check previous alignments and analysis to ensure that the conceptual design alignment is the best alternative in this area. Text will be added to the report regarding the other alignments considered and why this alignment was selected.

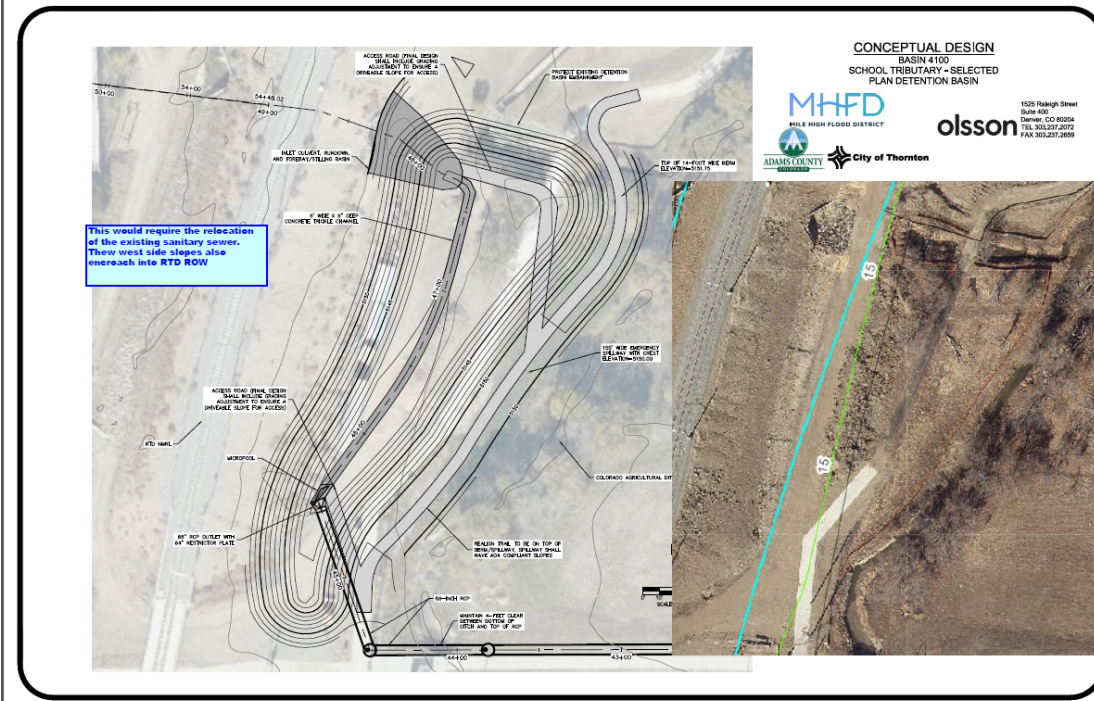
5) Colorado Boulevard

Dave Skuodas, PDF pg 11: Is this really necessary? What does this buy us? Is no flow allowed in Colorado Blvd or is this intended to capture all of the 100-year?

- The pipe lowering is needed to eliminate a spill onto Colorado Boulevard.
 - Clarify and give context on the map as to what the purpose of the proposed improvement is.

6) School Tributary: Detention

Jim Kaiser, PDF pg 636: This would require the relocation of the existing sanitary sewer. The west side slopes also encroach into RTD ROW



- LiDAR does not reflect area very well with newer development and construction of the pond to the north. It is possible that the sanitary sewer would need to be relocated. Alternatively, grading could start outside of RTD ROW and potentially move closer to the canal, or the trail could be relocated to the east side of the canal and could cross back over with a pedestrian bridge. Additional information would be needed to fully determine the best approach to fit the required detention in this location. The sanitary sewer and ROW will be added to the plan, and discussed further in the report.

- Old Welby Road was within the RTD ROW, so there is potential that the slopes in the RTD ROW would be acceptable.
- Add information to report, plan view and detailed figure to note constraints of this area and factors that will need to be considered with final design. The constraints are the RTD ROW, sanitary sewer line, agricultural ditch, trail, pond of the north, and downstream flows.

7) General Comments

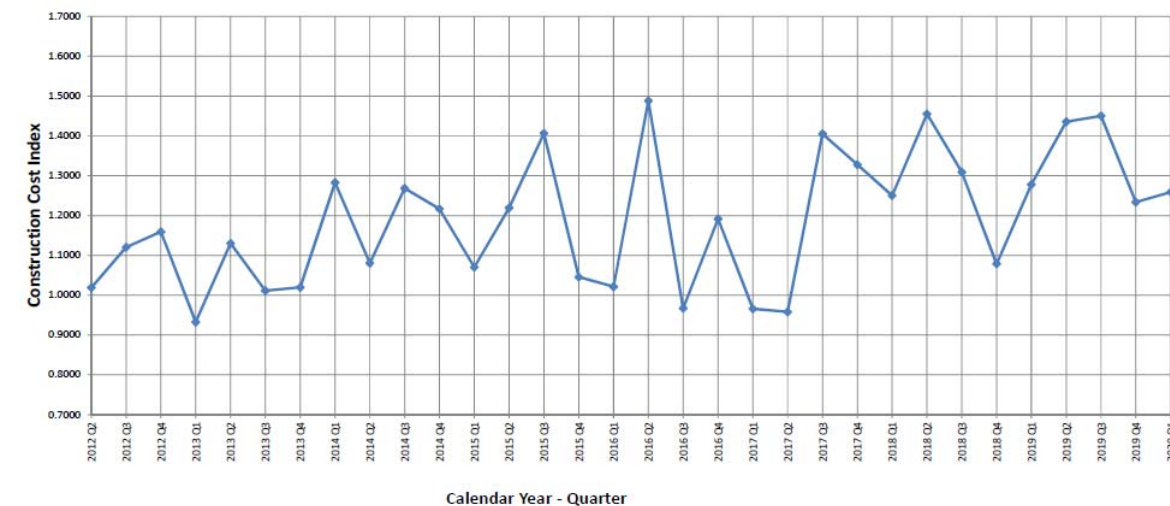
Dave Skuodas, PDF pg 41: I don't support the idea of check structures. The reason for this, the access to install a check structure is pretty tight, meaning it will be disruptive to install one. Perhaps not to the channel, but to the area we need to use for access. True "check structures" eventually become drop structures, which means we'd need to come back and perhaps convert them. If that's going to be the case, I'd rather do restorative work upstream and downstream of fully designed and constructed drop structures so we only have to get in there once. Let's discuss this further at our review meeting.

- How are HFLMS being implemented at a master planning level in developed areas? The tighter corridors and structure inverts do not make an actual HFLMS design feasible in many locations in this drainageway.
 - Given the current conditions, it is more likely for MHFD to perform linear restoration to the channel in this location, as opposed to installing check structures. This area should include low height drop structures (1'-3' high) to establish a stable slope with some channel re-shaping. Text should be added to the report explaining that this work should be done once signs of erosion start to occur and the channel begins to unravel.
 - Bordering property ownership is to be verified by Olsson along this portion of the corridor.

Dave Skuodas, PDF pg, 42: In looking at some recent bids, I could see upping all of these unit costs by around 50% across the board. Seems pretty consistent.

- Unit costs are determined using the Swift tool/UD_MP_Cost. The base unit costs are from 2012, and then the latest CDOT CCI information (see below) is input to determine the current unit costs. The unit costs do appear to be low as compared to current bids. Should the CCI factor be increased from what CDOT shows to raise all unit costs? How are other MDPs being updated?
 - Unit costs will be updated via the CCI cost index and information will be added to the report text explaining how and why the change was made.

Colorado CCI - Quarterly Data, Cumulative Assuming 2012 Q1 = 1.0000



Dave Skuodas, PDF pg 48: (Conceptual Design Report Text) This is all pretty hard to follow, particularly because the Conceptual Design map doesn't show much.

- This section of the report should be compared to the Alternatives Map, which includes each alternative. The Conceptual Design map only shows the improvements that were included in the Selected Plan. The Conceptual Design section of the report coincides with the map, eliminating any alternatives that were not chosen for the selected plan and conceptual design. Is additional clarification in the report needed?
 - Clarification should be added to the map to explain why status quo was recommended for J and H Tributary.

Dave Skuodas, PDF pg 55: (Public Safety weighted at 10% on the Alternatives Decision Matrix) It doesn't seem like this should be weighted so low...

- Public safety will be increased to 15% and cost will be lower to 15%. Based on the new results, the recommended alternatives did not change.
 - Public Safety will be moved to the first column, so it is more clear that it is an item of high importance to the project.

8) Conceptual Design Map

Dave Skuodas: It would be helpful to see the existing public ROW/drainage easements if at all possible, perhaps as a differently shaded polygon for the corridor we have to work within.

- ROW/Easement information does not appear to be available for download. Can this linework be provided?
 - Adams County and Thornton will provide GIS information for ROW and easements, if they are available, and available information will be included in the map.

9) What should we be referring the development area north of the proposed Riverdale water quality location?

- This comment is no longer applicable since the water quality was eliminated in item #1.

10) Other

- Thornton noted that there are improvements being made to Riverdale Road, but that some water will still flow over the road to the north into Adams County parks and open space, like it does today.

Action Items:

- Thornton
 - Provide ROW and Easement GIS information, if available.
 - Provide field verification information for Colorado Agricultural Ditch crossing.
- Adams County
 - Provide ROW and Easement GIS information, if available.
 - Provide plans for trail crossing, if available.

Please contact Olsson at 303-237-2072 with changes or questions regarding these meeting minutes. These minutes will be considered final unless comments are received within seven days of distribution. Although comments will be incorporated, as appropriate, only major revisions will be redistributed.

Minutes prepared by: Hannah Pring

cc: Attendees, File

BRIDGE/CULVERT INFORMATION

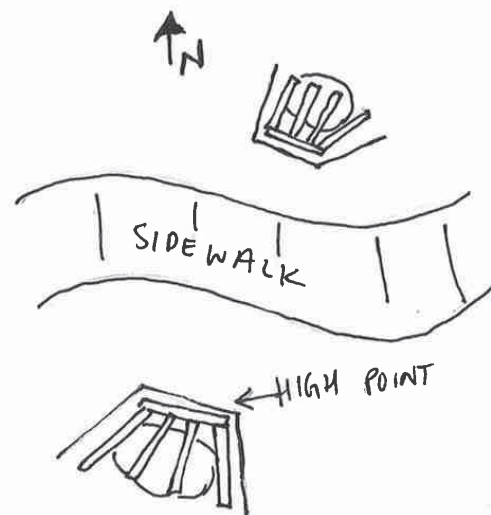
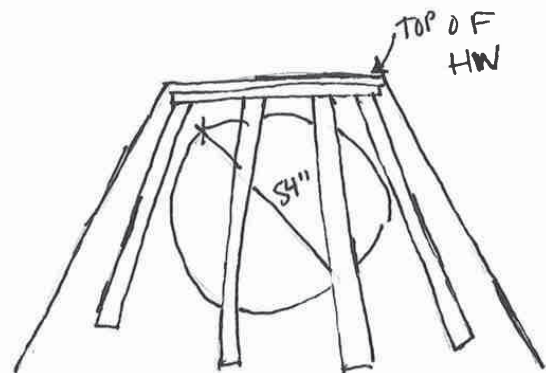
Crossing Name: F

BRIDGE	CULVERT
Alignment _____	Inside Dimensions _____
Bridge Opening Width W _____	• Rise (Diameter) <u>54"</u>
Bridge Opening Length L _____	• Span _____
Piers (see below for quantity, type)	Shape <u>CIRCULAR</u>
• Width _____	Material <u>RCP</u>
• Pier Cap Width _____	Length of Culvert _____
• Pier Cap Height _____	Road Elevation _____
Elevation Top _____	Outlet _____
Elev Low Steel _____	• Siltation Depth _____
Bridge Opening Sideslopes _____	• End Projection _____
Embankment Sideslopes _____	Embankment Sideslopes _____
• Entrance _____	• Entrance _____
• Outlet _____	• Outlet _____
Entrance _____	Entrance _____
• Wingwall Angle _____	• Wingwall Angle _____
• Wingwall Length _____	• Wingwall Length _____
• Angle of Bridge Skew _____	• Angle of Bridge Skew _____
Top of Railing _____	Top of <u>HEADWALL: SEE REMARKS</u>
Invert Elevations _____	Invert Elevations _____
• Entrance _____	• Entrance <u>5138.23'</u>
• Outlet _____	• Outlet <u>5137.68'</u>
High Point in Road Centerline _____	High Point #: <u>5143.79'</u>
Deck Elevations _____	Elevation Top _____

REMARKS: TOP OF HEADWALL SOUTH OF THE SIDE WALK = 5143.79'
TOP OF HEADWALL NORTH OF THE SIDE WALK = 5143.08'
 • HIGH POINT IS AT THE TOP OF HEADWALL ON THE SOUTH SIDE FOR THIS CROSSING.

INVERTS SIMILAR FOR NORTH & SOUTH SIDES

SKETCH



F - In (South)



Note: No image was obtained for F - Out (North) due to difficulties on site.

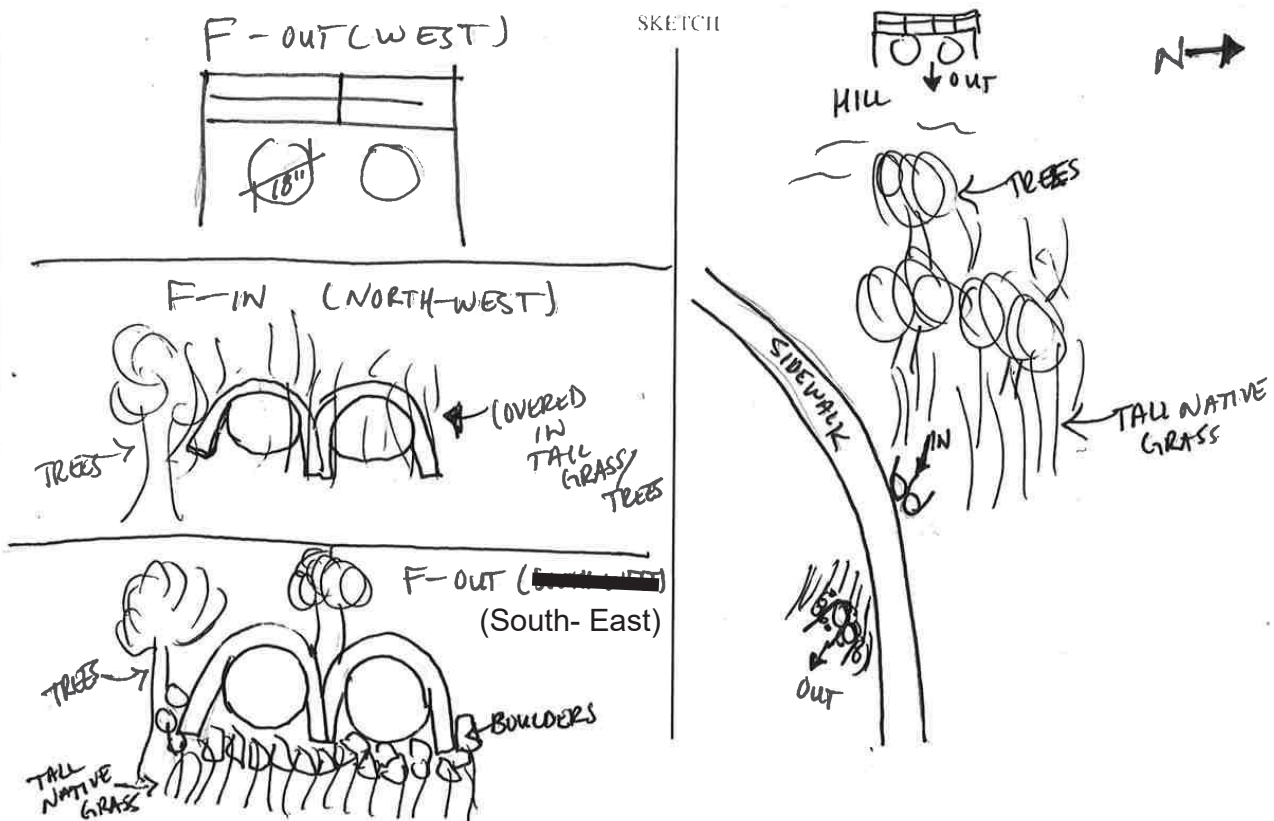
BRIDGE/CULVERT INFORMATION

Crossing Name: Crossing F - Correction

BRIDGE	CULVERT
Alignment _____	Inside Dimensions _____
Bridge Opening Width W _____	•Rise (Diameter) <u>18"</u>
Bridge Opening Length L _____	•Span _____
Piers (see below for quantity, type)	Shape <u>CIRCULAR</u>
•Width _____	Material <u>RCP</u>
•Pier Cap Width _____	Length of Culvert _____
•Pier Cap Height _____	Road Elevation _____
Elevation Top _____	Outlet _____
Elev Low Steel _____	•Siltation Depth _____
Bridge Opening Sideslopes _____	•End Projection _____
Embankment Sideslopes _____	Embankment Sideslopes _____
•Entrance _____	•Entrance _____
•Outlet _____	•Outlet _____
Entrance _____	Entrance _____
•Wingwall Angle _____	•Wingwall Angle _____
•Wingwall Length _____	•Wingwall Length _____
•Angle of Bridge Skew _____	•Angle of Bridge Skew _____
Top of Railing _____	Top of Railing _____
Invert Elevations _____	Invert Elevations _____
•Entrance _____	•Entrance <u>5139.11'</u>
•Outlet _____	•Outlet <u>5135.00'</u>
High Point in Road Centerline _____	High Point in Road Centerline <u>5143.79'</u>
Deck Elevations _____	Elevation Top <u>SIDEWALK</u>

REMARKS: ELEVATION AT F-OUT-WEST = 5148.25'

F - Out (West)



F - In (North-West)



F - Out (South-East)

