Design and Environmental Study For

ARLINGTON AVENUE BRIDGES REPLACEMENT

ARLINGTON AVENUE BRIDGES PROJECT

Design Review Committee Meeting #13 | May 12, 2023

Purpose of Today's DRC Meeting:

ARLINGTON AVENUE BRIDGES PROJECT

- ✓ Utility Updates
- ✓ Environmental Updates
- ✓ 90% Design Updates
- ✓ 60% Review Comments
- ✓ Design Exceptions Approved By the City of Reno
- ✓ Schedule

Utilities

ARLINGTON AVENUE BRIDGES PROJECT

RTC sent out letters to Utility Companies week of May 1st

Individual meetings scheduled for week of May 15th

Charter:	Monday	5/15	2:00
NV Energy:	Wednesday	5/17	3:00
AT&T:	Thursday	5/18	8:00

Design: Looking at location within the bridges (east/west), connectivity to existing facilities, vault/box structures outside of roadway and sidewalk

Environmental Updates

ARLINGTON AVENUE BRIDGES PROJECT

Environmental Updates

ARLINGTON AVENUE BRIDGES PROJECT

NEPA Clearance

- Section 106:
  - NDOT has SHPO concurrence for SB-22-03 (south of north bridge) and SB-22-04 (in-river)
  - NDOT consulting on SB-22-05 (north of north bridge); Ongoing FHWA and NDOT coordination
  - NDOT will submit consultation docs for project when geotech consultation is complete
- Section 4(f):
  - Received City of Reno concurrence
  - FHWA wants assurance that whitewater park user comments addressed adequately. Responses included in PIM#3, will be emailed to stakeholder group, and posted on the website
- Section 7:
  - USFWS concurrence received 4/17 for geotech drilling and project construction activities in the river (may affect, but is not likely to adversely affect the LCT or cui-ui)

USACE Permits

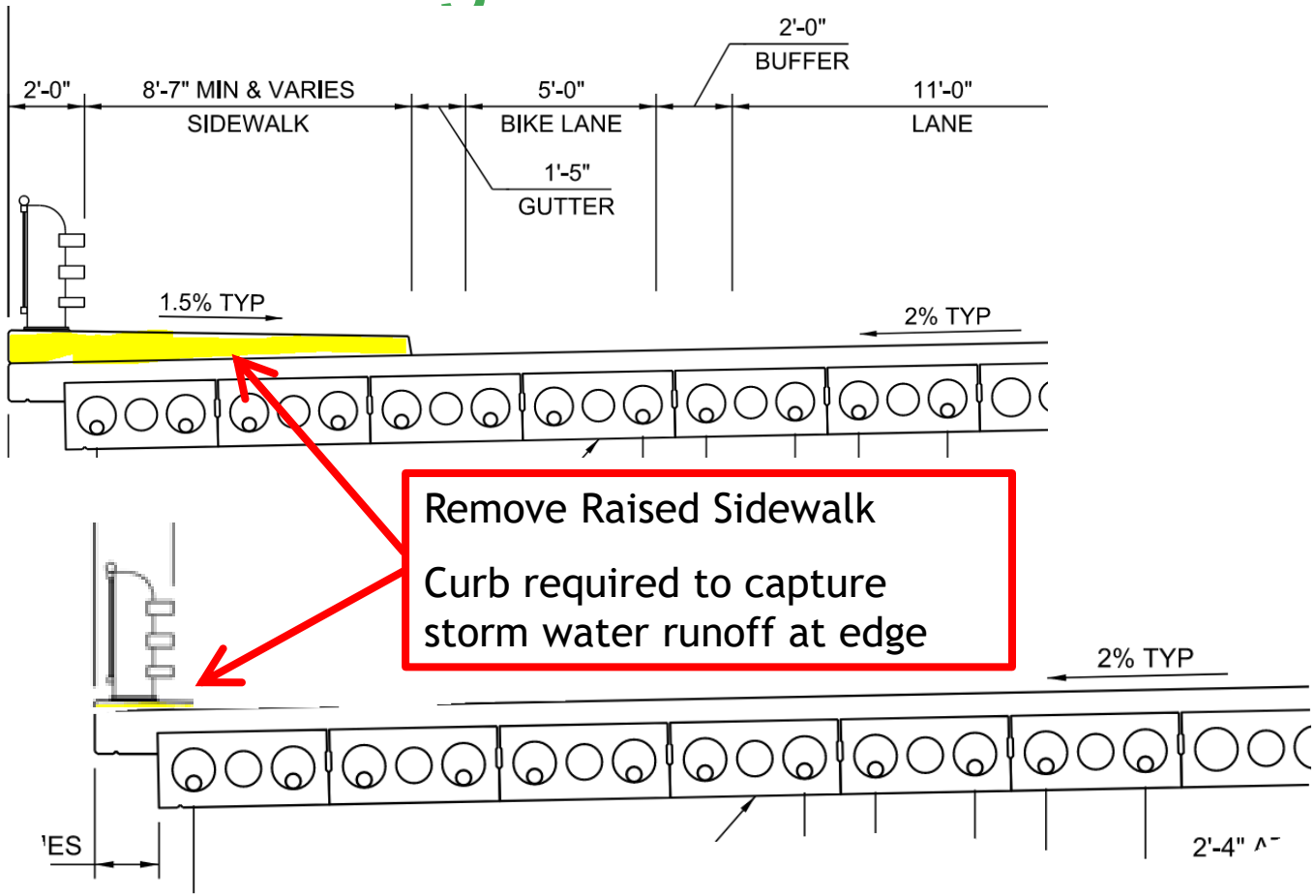
- Geotechnical Work
  - Section 408 – expect authorization by July
  - Section 404 – submitted to USACE 4/18
  - Section 401 – submitted to NDEP 4/21 requesting waiver (otherwise ~90 day process)
- Project
  - Section 408 – submitted by CTWCD to USACE – April 26
  - Section 404/401 – will submit later in design process.

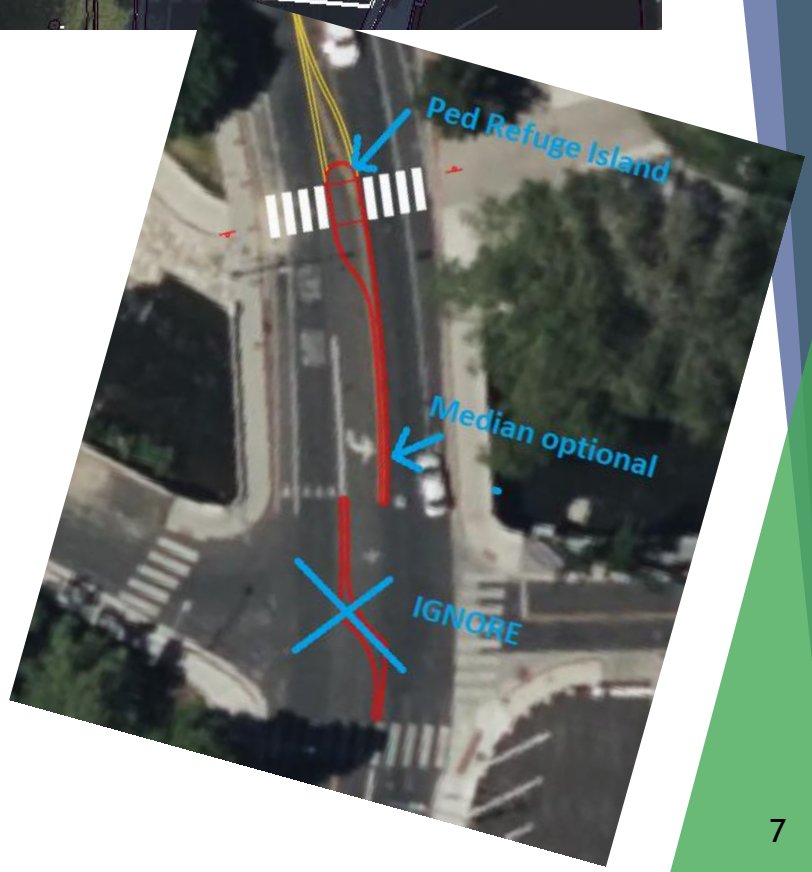
90% Design

ARLINGTON AVENUE BRIDGES PROJECT

Pedestrian Circulation at Island Ave / Arlington Ave.
Drainage Design and Pipe outlets through abutments
Design Exceptions
Coordination with City of Reno for Tree Impacts

90% Design – Pedestrian Circulation



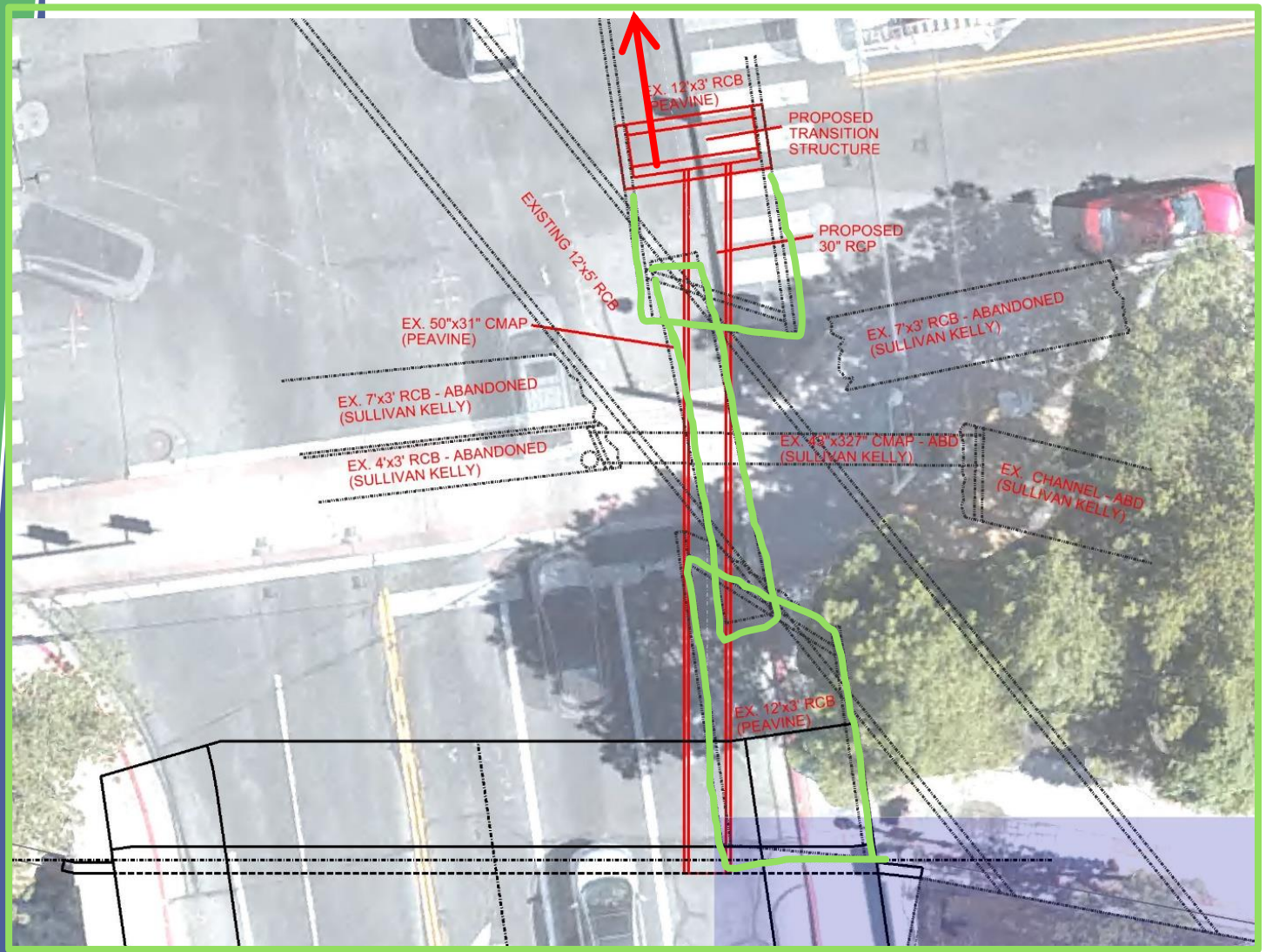


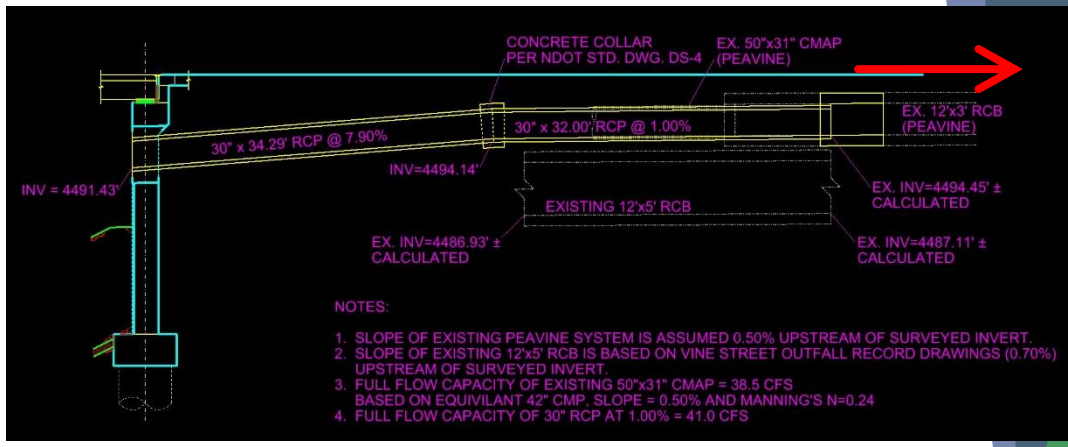
- Will implement an ‘at-grade’ sidewalk area along south bridge
- No bump outs
- No mid-block crossing

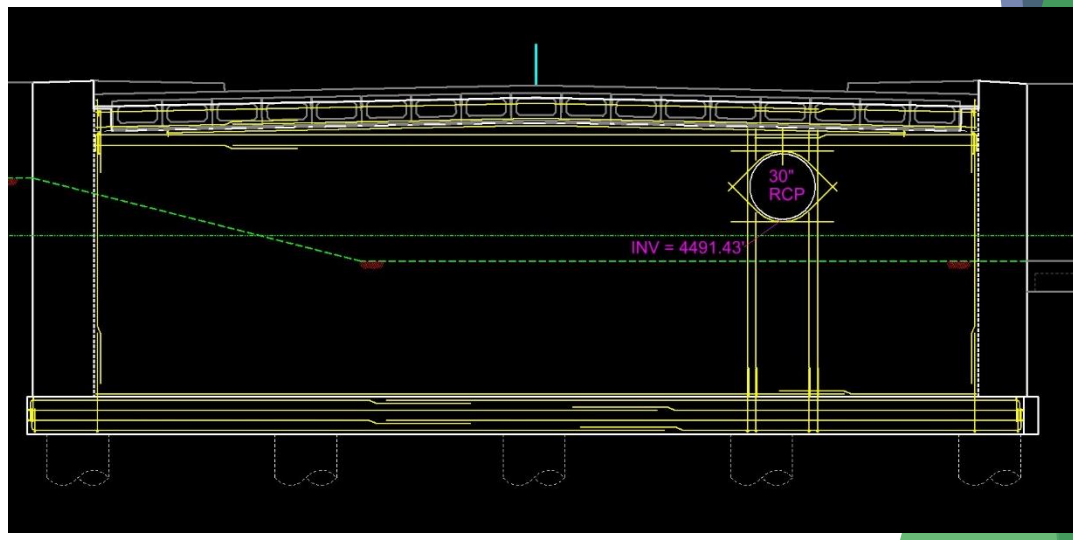
90% Design – Storm Drain

ARLINGTON AVENUE BRIDGES PROJECT

- PEVINE CONNECTION
  - Remove existing 50”x31” CMAP and 12’x3’ RCB – **remove as far north across intersection as possible**
  - Install transition structure and 30” outfall pipe
  - 30” outfall discharges at north bridge abutment

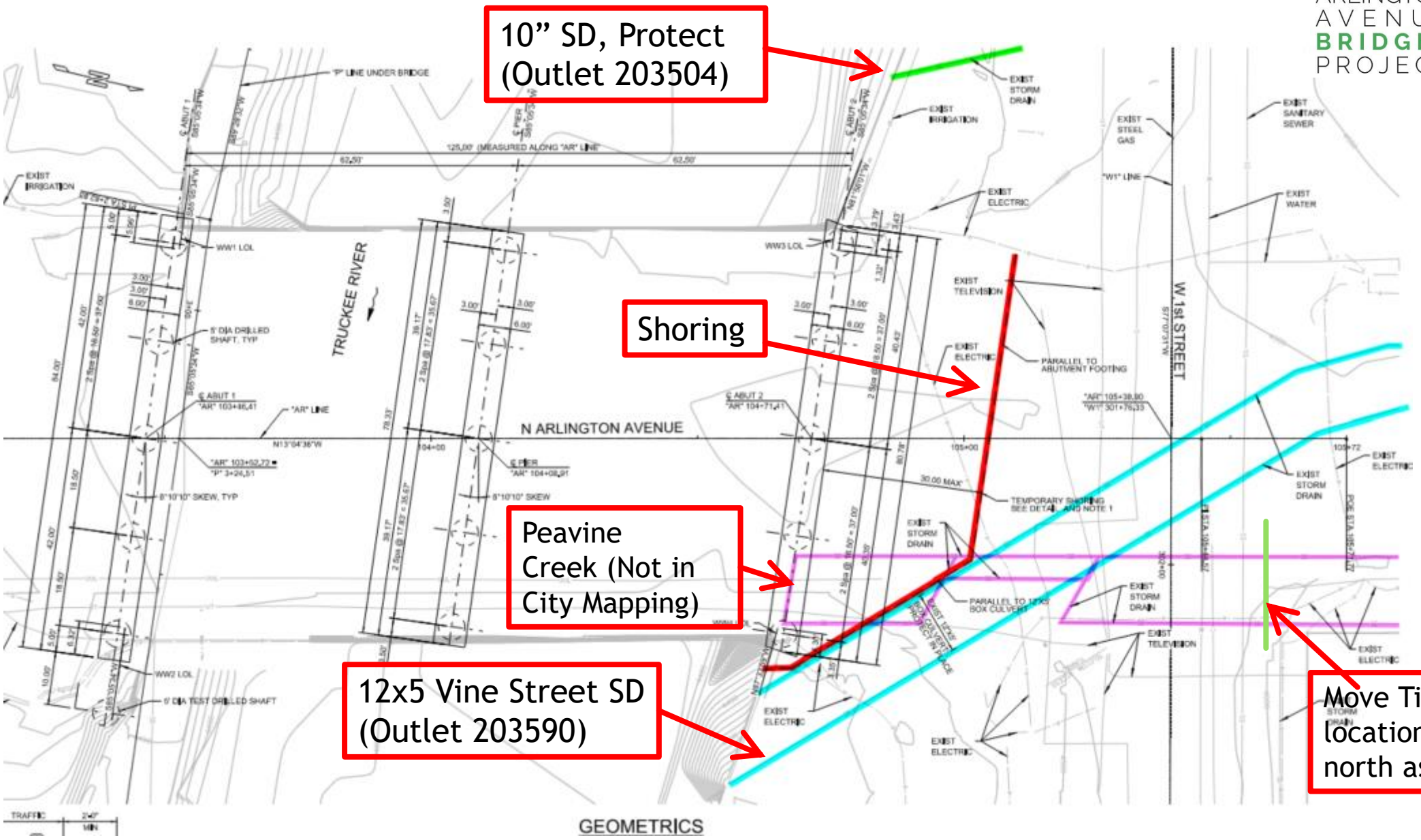






Pipe Outlets Through North Floodwall

ARLINGTON AVENUE BRIDGES PROJECT



Pipe Outlets Through North Floodwall

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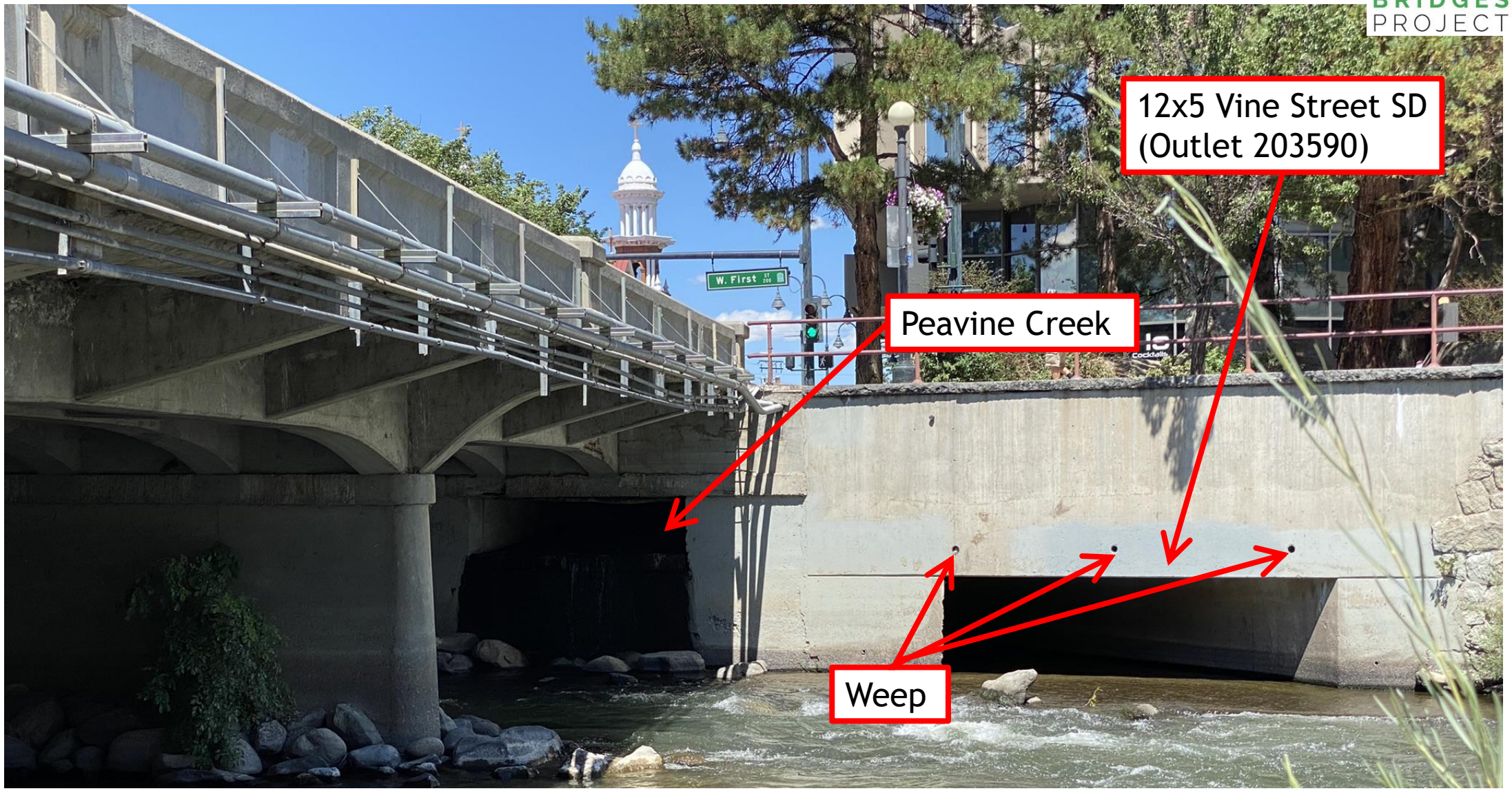
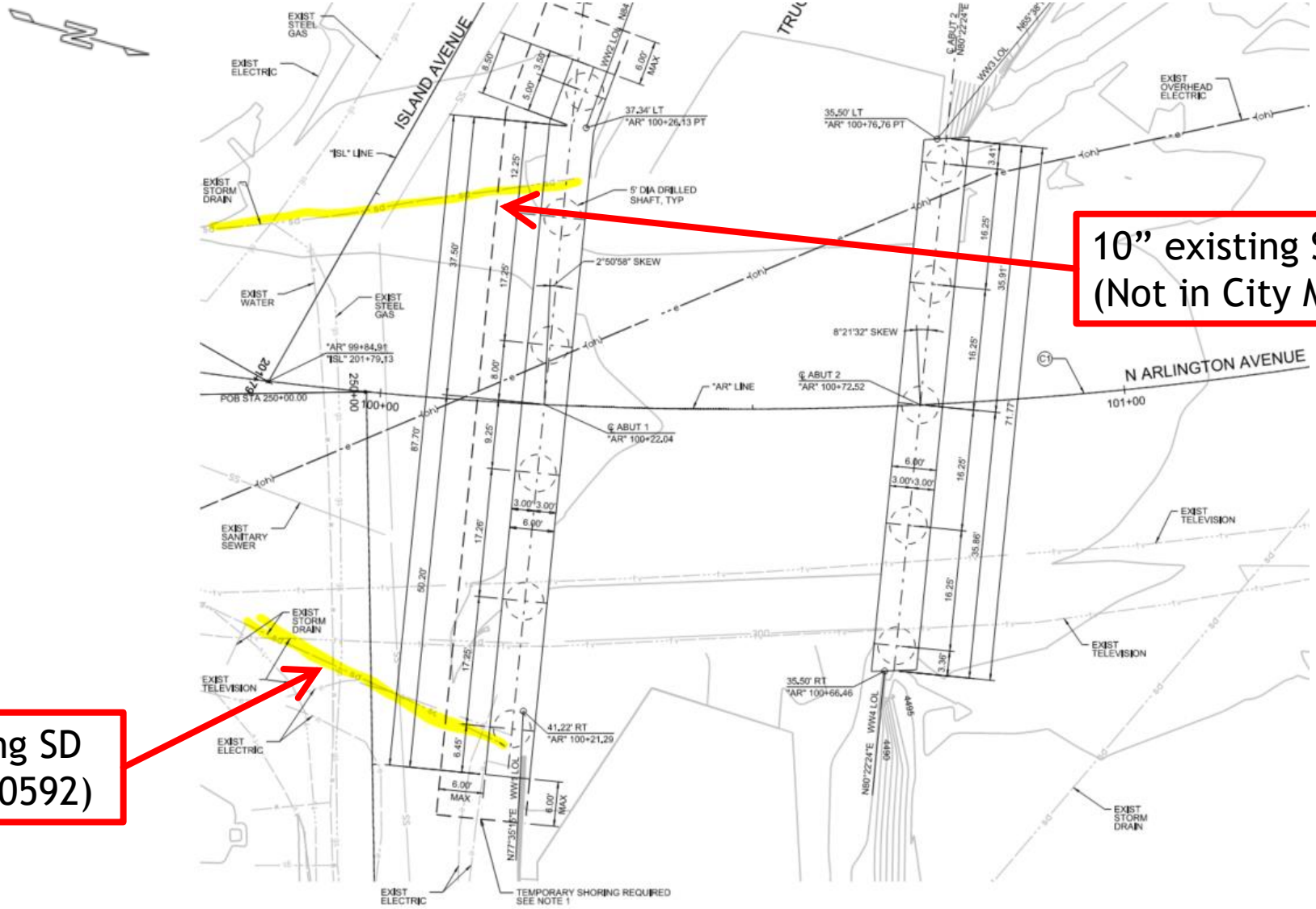


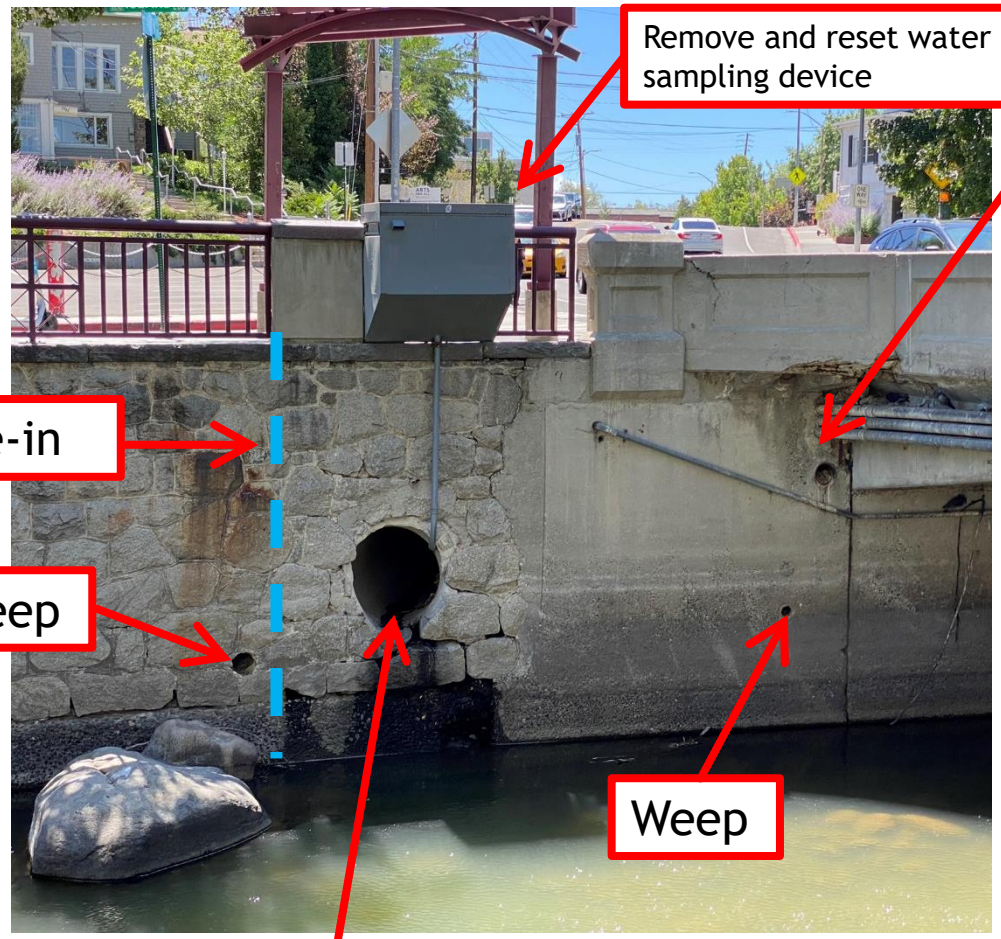
Pipe Outlets Through South Floodwall

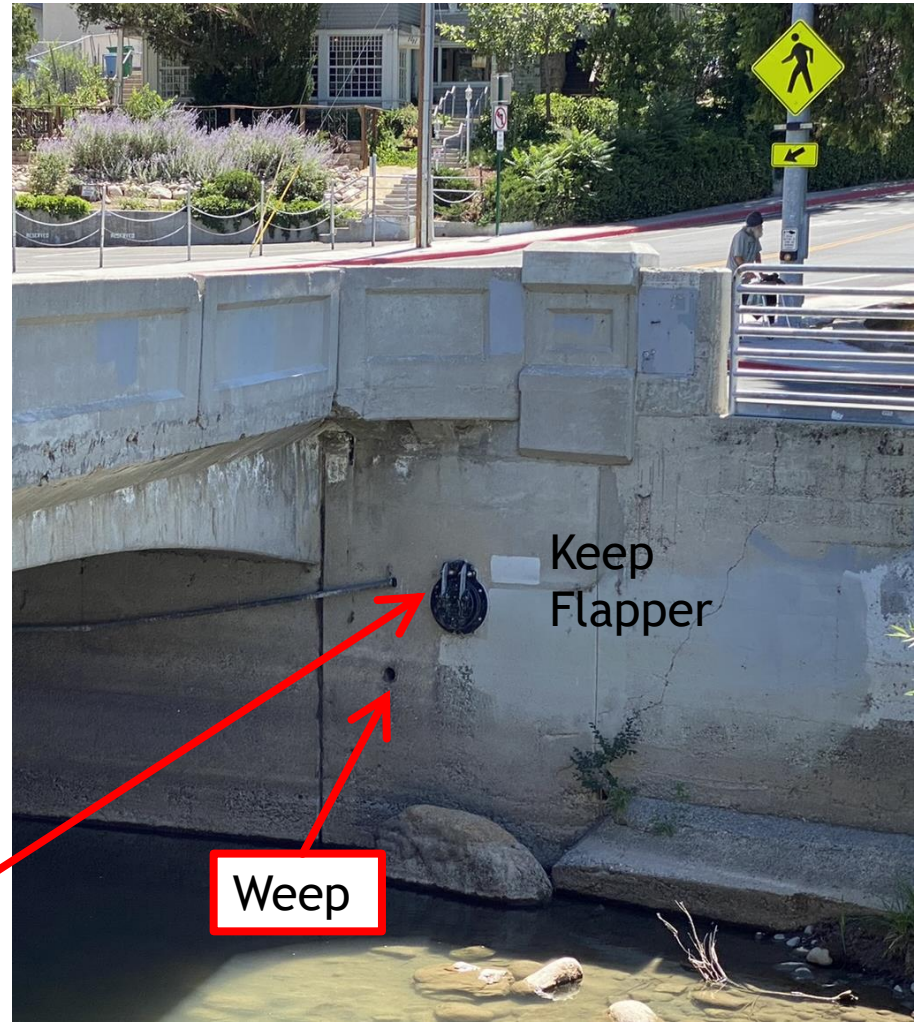
ARLINGTON AVENUE BRIDGES PROJECT



Pipe Outlets Through South Floodwall

ARLINGTON AVENUE BRIDGES PROJECT





No Flapper – Water Sampling Device

42” existing SD (Outlet 210592)

10” existing SD (Not in City Mapping)

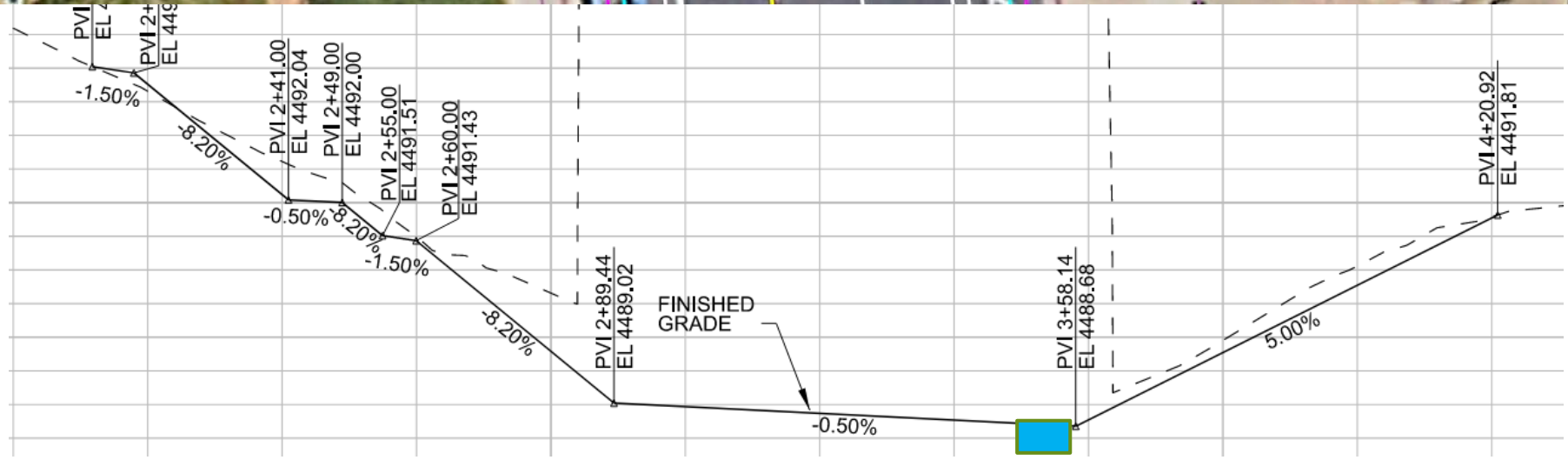
Pedestrian Path Under North Bridge Drainage

- Photo: May 2, 2023
- Approx. 1’ Standing Water
- No Signage that Path Access was Closed

90% Design – Storm Drain

ARLINGTON AVENUE BRIDGES PROJECT

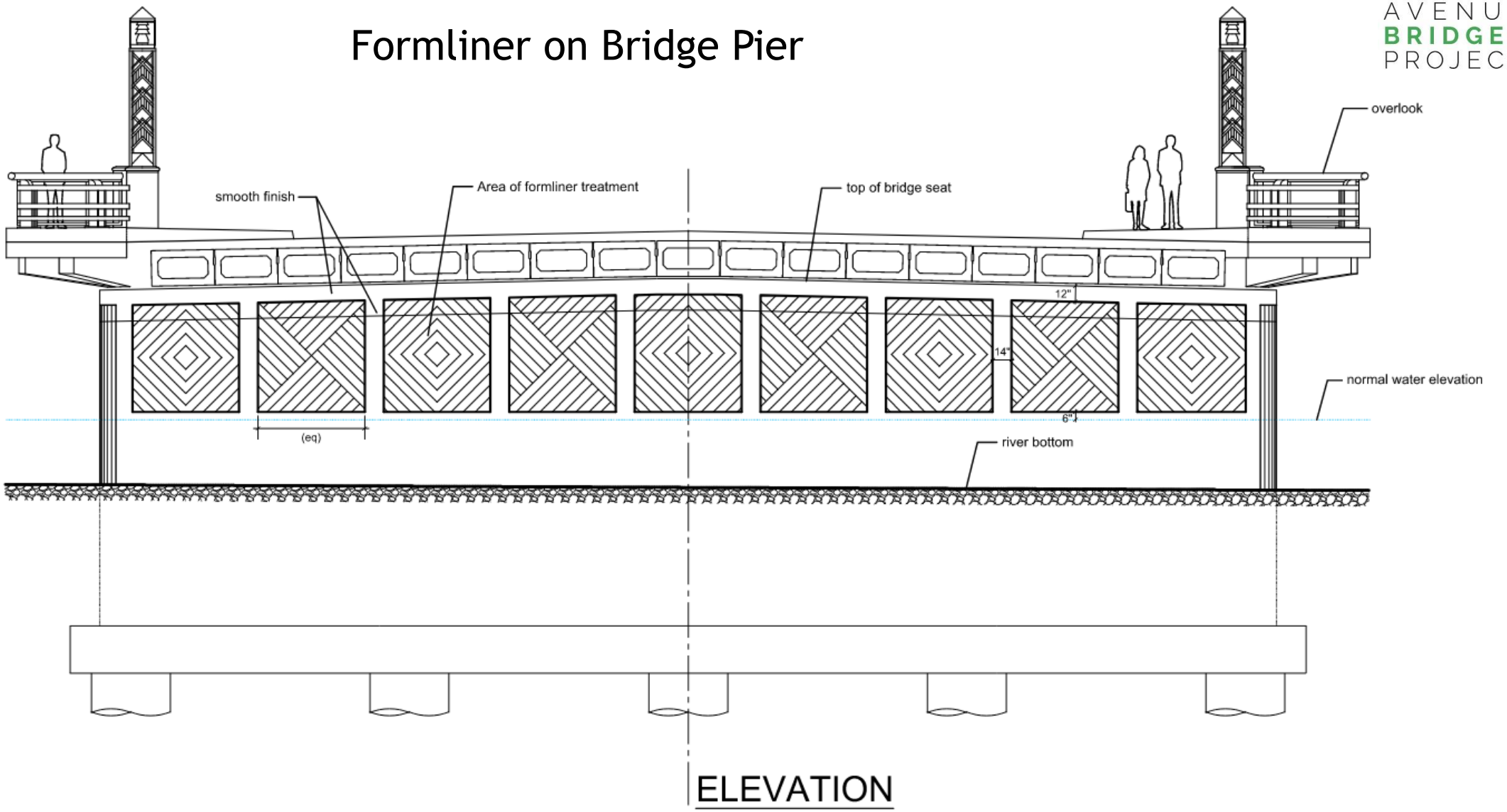
- DRAINAGE FOR PATH UNDER NORTH BRIDGE
  - Ped/Bike friendly inlet at low spot
  - Simple outlet pipe with duck bill or flapper – design pipe & inlet so easy maintenance of debris



90% Design – Aesthetics - Formliner

ARLINGTON AVENUE BRIDGES PROJECT

Formliner on Bridge Pier



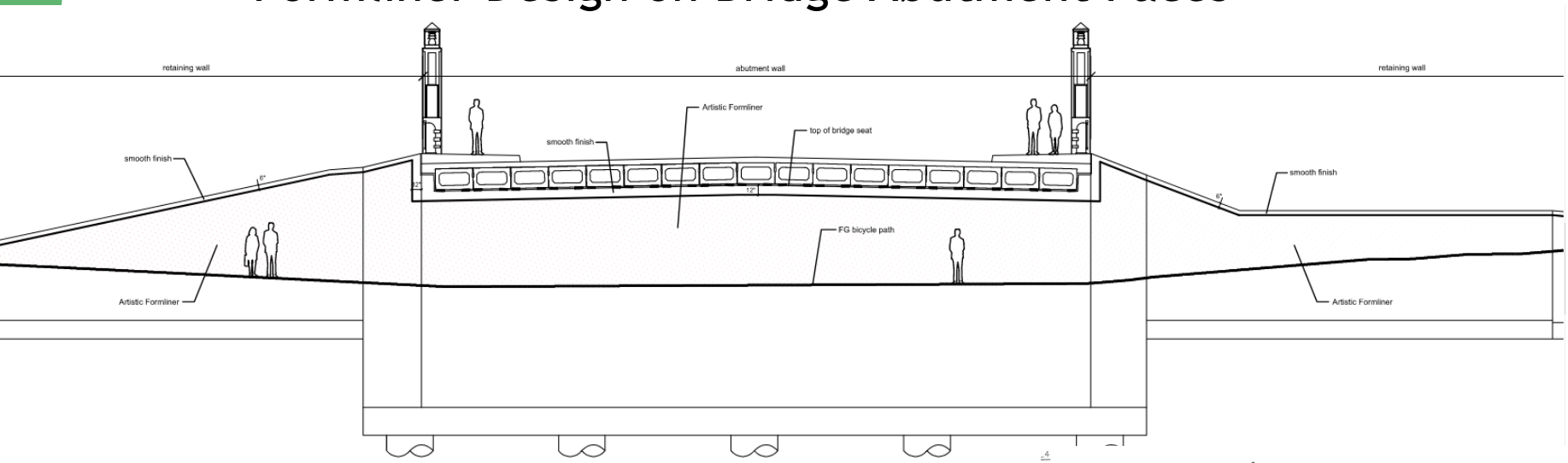
ELEVATION

NORTH BRIDGE - PIER

90% Design – Aesthetics – Call for Artists

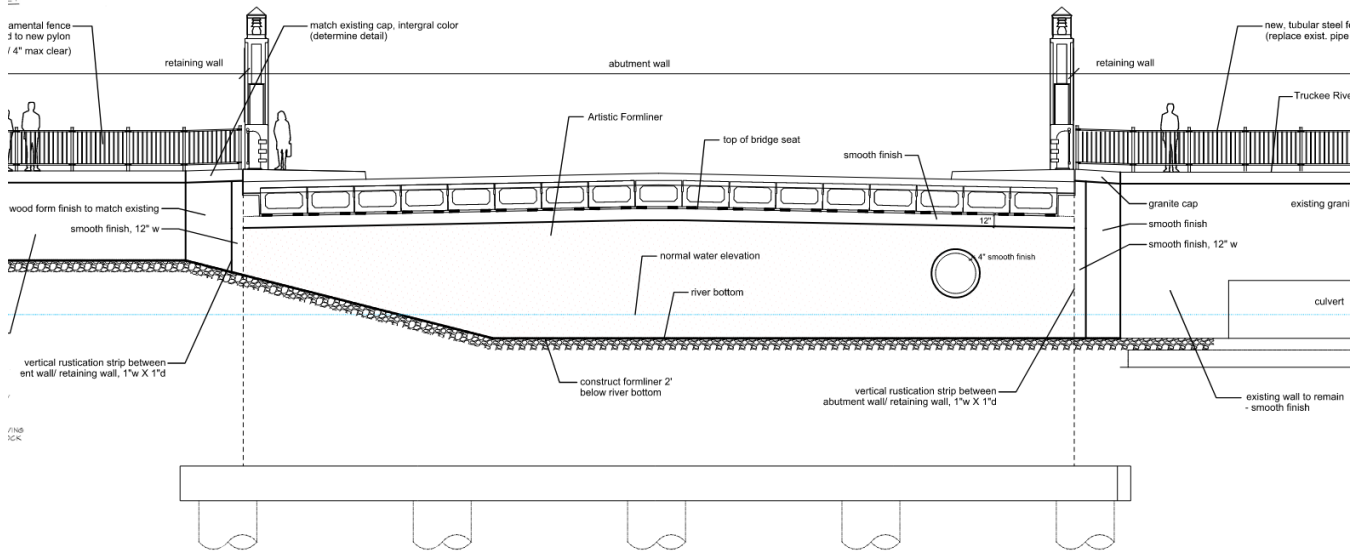
ARLINGTON AVENUE BRIDGES PROJECT

Formliner Design on Bridge Abutment Faces



ELEVATION

NORTH BRIDGE - ABUTMENT 1



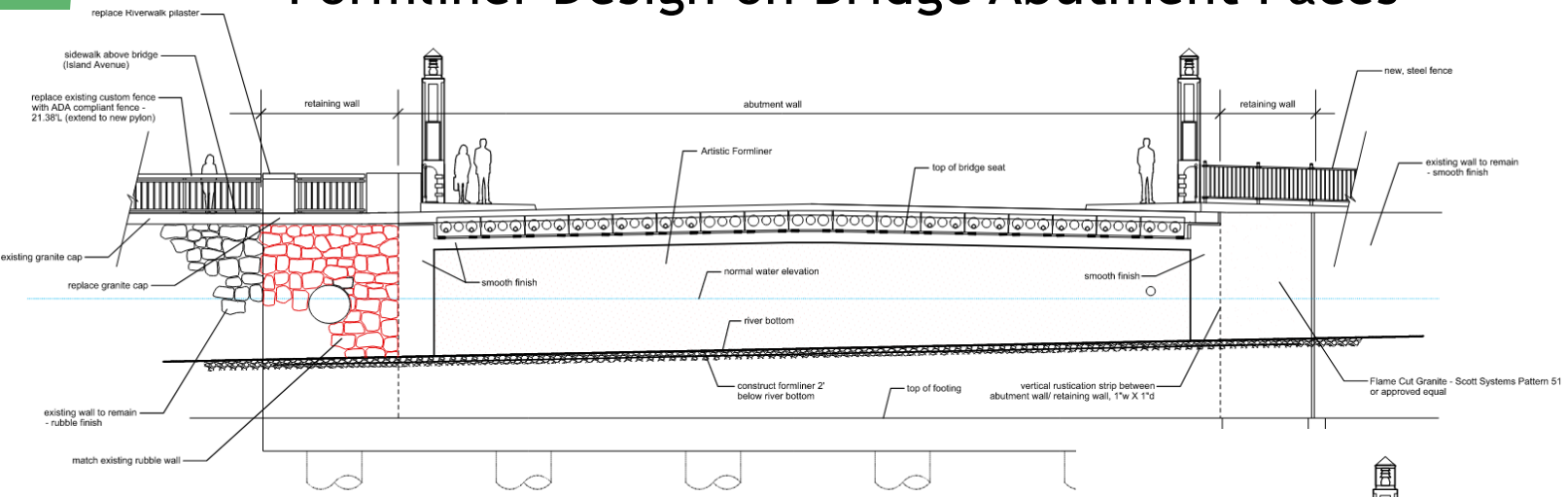
ELEVATION

NORTH BRIDGE - ABUTMENT 2

90% Design – Aesthetics – Call for Artists

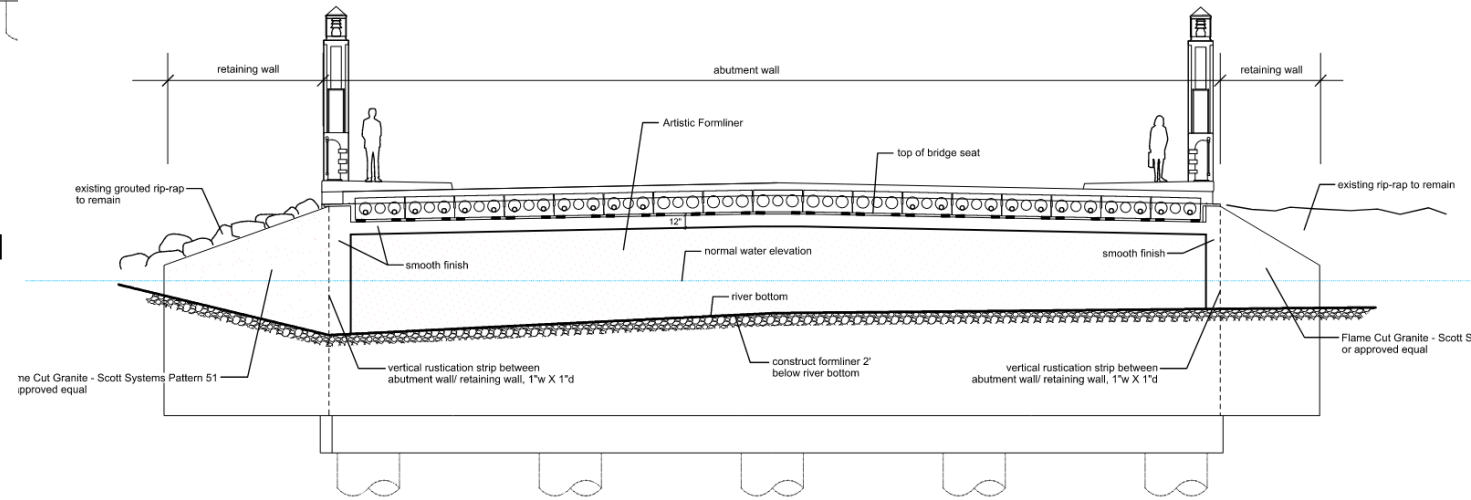
ARLINGTON AVENUE BRIDGES PROJECT

Formliner Design on Bridge Abutment Faces



ELEVATION

SOUTH BRIDGE - ABUTMENT 1

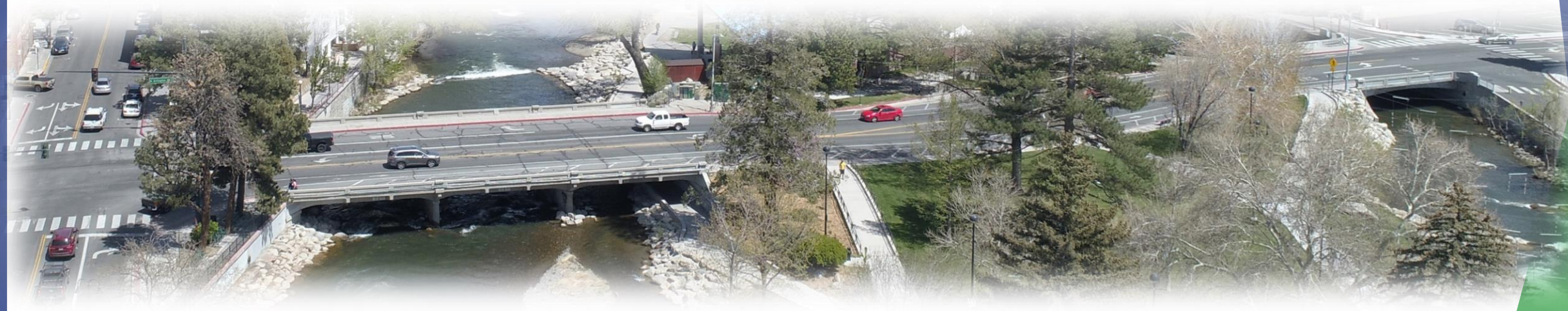


ELEVATION

SOUTH BRIDGE - ABUTMENT 2

ARLINGTON AVENUE BRIDGES PROJECT

60% REVIEW COMMENTS

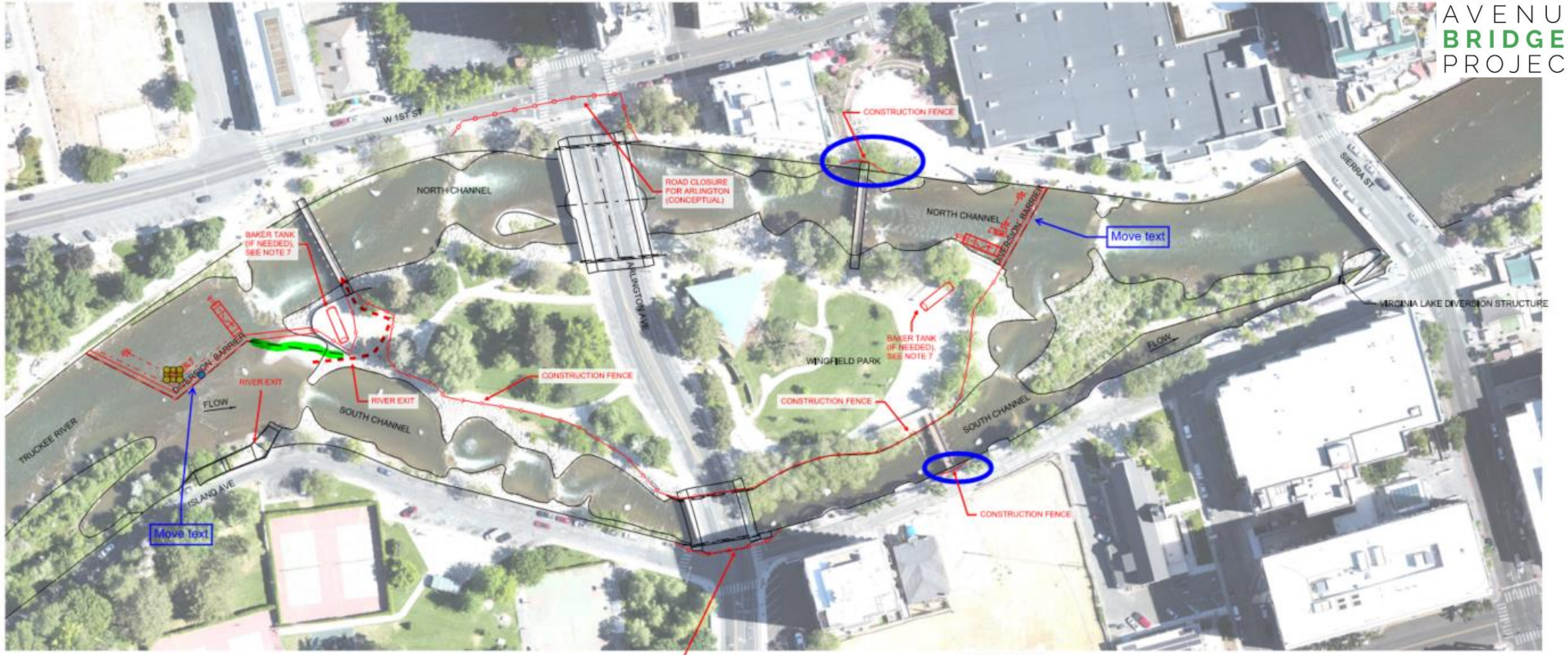


ARLINGTON AVENUE BRIDGES PROJECT

Dewater / Diversion Concepts

Dewatering - North Bridge Construction

ARLINGTON AVENUE BRIDGES PROJECT



PLAN

LEGEND

- DIVERSION BARRIER
- 2' V-DITCH
- PUMPS AND PIPING EQUIPMENT
- TEMPORARY SUMP LOCATION
- BAKER TANK (IF NEEDED), SEE NOTE 7

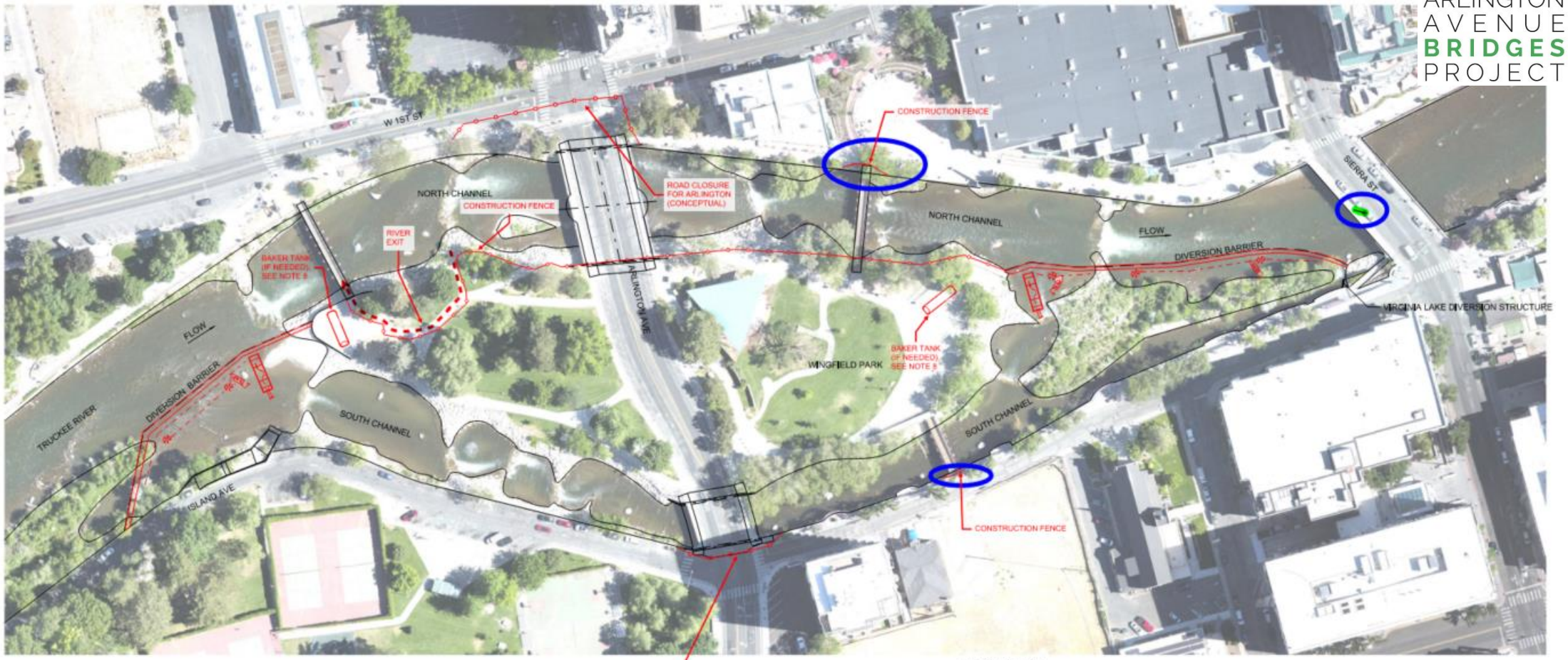
THE DIVERSION MUST BE REMOVED BY OCTOBER 31ST UNLESS THE IN-WATER WORK PERIOD IS EXTENDED BY THE CARSON-TRUCKEE WATER CONSERVANCY DISTRICT (CTWCD). ANY REQUEST TO EXTEND THE IN-WATER WORK PERIOD MUST BE SUBMITTED TO CTWD NO LATER THAN SEPTEMBER 15TH. NOVEMBER 30TH IS THE LATEST THAT THE DIVERSION COULD REMAIN IN PLACE WHEN AN EXTENSION IS GRANTED. IF THE FLOWRATE OF THE RIVER REACHES 1,600 CFS AND MORE WATER IS EXPECTED DURING THE IN-WATER WORK WINDOW, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, MATERIALS, AND PERSONNEL FROM THE DIVERSION AREA AND REMOVE THE DIVERSION.

DIVERSION NOTES:

1. THESE PLANS ARE CONCEPTUAL ONLY AND INTENDED TO SERVE AS A GUIDELINE TO ESTABLISH MINIMUM CRITERIA REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT A RIVER DIVERSION PLAN IN ACCORDANCE WITH SECTION XXX OF THE SPECIAL PROVISIONS. THE ACTUAL LOCATION, SIZING AND EQUIPMENT SHALL BE DETERMINED BY THE CONTRACTOR.
2. ONE BRIDGE SHALL BE CONSTRUCTED AT A TIME. THE NOTES BELOW PERTAIN TO CONSTRUCTION OF THE NORTH BRIDGE.
3. DIVERSION OF THE RIVER INTO THE SOUTH CHANNEL SHALL BE COMPLETED PRIOR PRIOR TO ANY DEMOLITION WORK. DIVERSION CANNOT BE INSTALLED EARLIER THAN JULY 1ST.
4. IT IS ANTICIPATED THAT IT WILL TAKE ONE DRY SEASON TO DEMOLISH THE EXISTING BRIDGE, BUILD THE SUBSTRUCTURE, INSTALL PRECAST CONCRETE GIRDERS, CONSTRUCT OVERLOOKS, AND INSTALL DECK OVERHANG FORMS. DECK OVERHANG FORMS SHALL BE INSTALLED PRIOR TO REMOVAL OF THE DIVERSION AND SHALL INCLUDE DEBRIS NETS IN CONFORMANCE WITH PROJECT SPECIFICATIONS IN ORDER TO KEEP DEBRIS FROM FALLING DURING DECK CONSTRUCTION.
5. THE DIVERSION MUST BE REMOVED BY OCTOBER 31ST.
6. IF THE DECK IS POURED AFTER THE DIVERSION IS REMOVED, THE OVERHANG FORMS SHALL BE REMOVED FROM THE BRIDGE DECK WITHOUT ADDITIONAL RIVER DIVERSIONS.
7. EXACT REQUIREMENTS FOR HAZARDOUS MATERIALS HANDLING AND GROUND WATER PUMPING TO BE PER NDEP TEMPORARY AUTHORIZATION TO DISCHARGE PERMITS. ITEMS SHOWN ARE CONCEPTUAL ONLY.

Dewatering - South Bridge Construction

ARLINGTON AVENUE BRIDGES PROJECT



PLAN

LEGEND

- DIVERSION BARRIER
- 2' V-DITCH
- PUMPS AND PIPING EQUIPMENT
- TEMPORARY SUMP LOCATION
- BAKER TANK (IF NEEDED), SEE NOTE 8

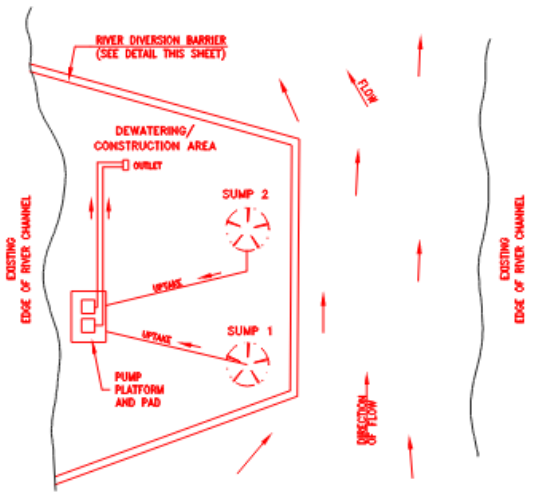
THE DIVERSION MUST BE REMOVED BY OCTOBER 31ST UNLESS THE IN-WATER WORK PERIOD IS EXTENDED BY THE CARSON-TRUCKEE WATER CONSERVANCY DISTRICT (CTWCD). ANY REQUEST TO EXTEND THE IN-WATER WORK PERIOD MUST BE SUBMITTED TO CTWD NO LATER THAN SEPTEMBER 15TH. NOVEMBER 30TH IS THE LATEST THAT THE DIVERSION COULD REMAIN IN PLACE WHEN AN EXTENSION IS GRANTED.

8. EXACT REQUIREMENTS FOR HAZARDOUS MATERIALS HANDLING AND GROUND WATER PUMPING TO BE PER NDEP TEMPORARY AUTHORIZATION TO DISCHARGE PERMITS. ITEMS SHOWN ARE CONCEPTUAL ONLY.

DIVERSION NOTES:

1. THESE PLANS ARE CONCEPTUAL ONLY AND INTENDED TO SERVE AS A GUIDELINE TO ESTABLISH MINIMUM CRITERIA REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT A RIVER DIVERSION PLAN IN ACCORDANCE WITH SECTION XXX OF THE SPECIAL PROVISIONS. THE ACTUAL LOCATION, SIZING AND EQUIPMENT SHALL BE DETERMEINED BY THE CONTRACTOR.
2. ONE BRIDGE SHALL BE CONSTRUCTED AT A TIME. THE NOTES BELOW PERTAIN TO CONSTRUCTION OF THE SOUTH BRIDGE.
3. DIVERSION OF THE RIVER INTO THE NORTH CHANNEL SHALL BE COMPLETED PRIOR PRIOR TO ANY DEMOLITION WORK. DIVERSION CANNOT BE INSTALLED EARLIER THAN JULY 1ST.
4. MAINTAIN A MINIMUM FLOW OF 5.0 CFS INTO THE SOUTH CHANNEL FROM AUGUST 1ST TO OCTOBER 1ST.
5. IT IS ANTICIPATED THAT IT WILL TAKE ONE DRY SEASON TO DEMOLISH THE EXISTING BRIDGE, BUILD THE SUBSTRUCTURE, INSTALL PRECAST CONCRETE GIRDERS, AND INSTALL DECK OVERHANG FORMS. DECK OVERHANG FORMS SHALL BE INSTALLED PRIOR TO REMOVAL OF THE DIVERSION AND SHALL INCLUDE DEBRIS NETS IN CONFORMANCE WITH PROJECT SPECIFICATIONS IN ORDER TO KEEP DEBRIS FROM FALLING DURING DECK CONSTRUCTION.
6. THE DIVERSION MUST BE REMOVED BY OCTOBER 31ST.
7. IF THE DECK IS POURED AFTER THE DIVERSION IS REMOVED, THE OVERHANG FORMS SHALL BE REMOVED FROM THE BRIDGE DECK WITHOUT ADDITIONAL RIVER DIVERSIONS.

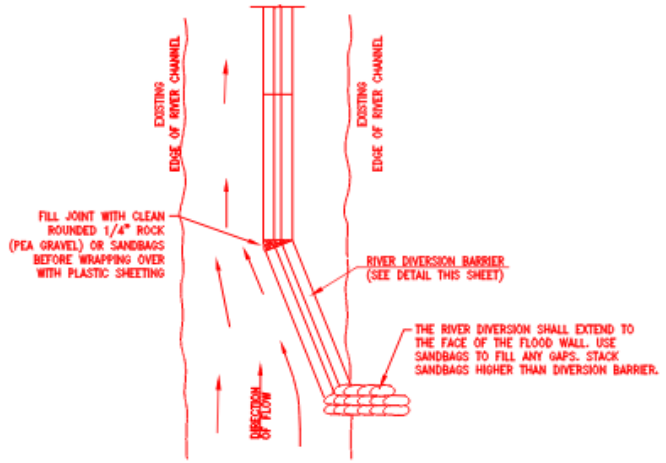
Dewatering - Details



NOTE:

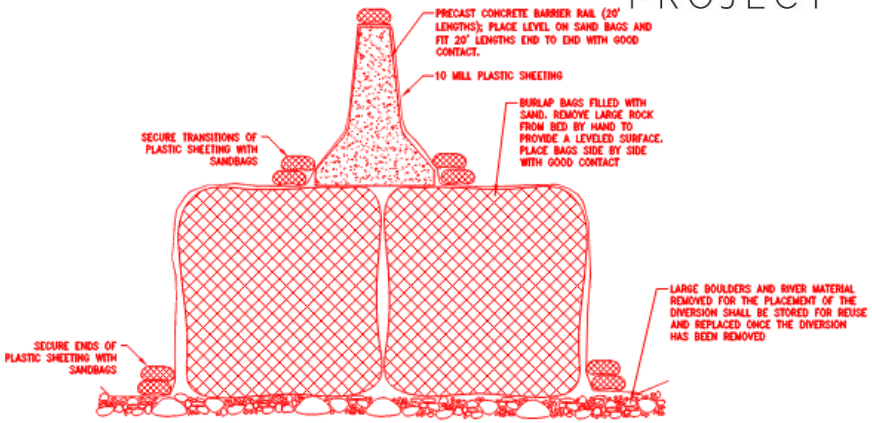
1. SUMPS CAN BE MADE FROM DIGGING A HOLE AND INSERTING A VERTICAL PERFORATED PVC PIPE AND BACKFILLING WITH CLEAN WASHED DRAIN ROCK MEETING THE REQUIREMENTS OF SECTION 200.11 OF THE SPECIAL PROVISIONS.
2. PUMP OUTLET TO SETTLING BASIN OR PER PERMIT REQUIREMENTS.

TYPICAL DEWATERING SCHEME
NTS

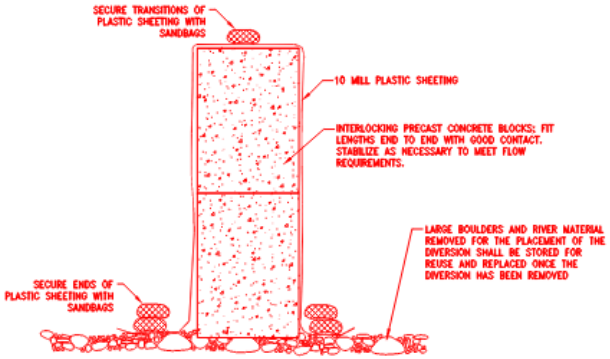


PLAN VIEW

TYPICAL RIVER DIVERSION ANGLE POINT
NTS



DIVERSION OPTION 1

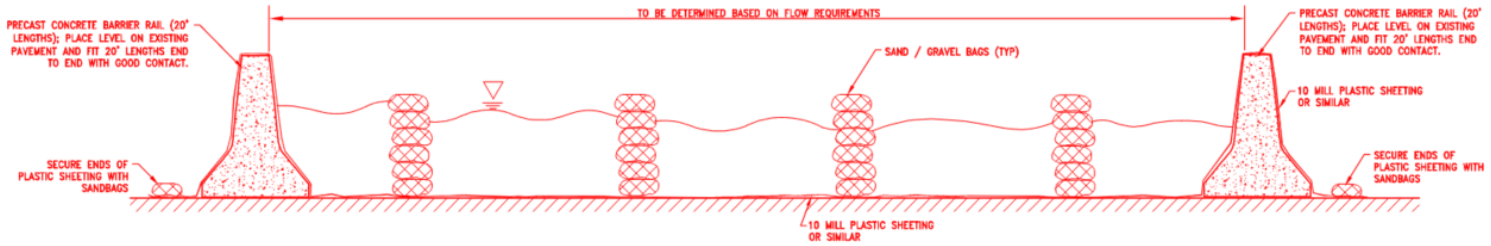


DIVERSION OPTION 2

NOTE:

1. THE CONTRACTOR SHALL BE CAUTIONED THAT THE BARRIER SECTIONS SHOWN MAY NOT FULLY INHIBIT WATER FROM INFILTRATING BELOW THE DIVERSION BARRIER. ADDITIONAL PRECAUTIONS SHALL BE TAKEN AS NEEDED FOR WORK OCCURRING IN THE RIVER CHANNEL.
2. IN ADDITION OT THE OPTIONS SHOWN, A "PORTA DAM" SYSTEM MAY BE USED.

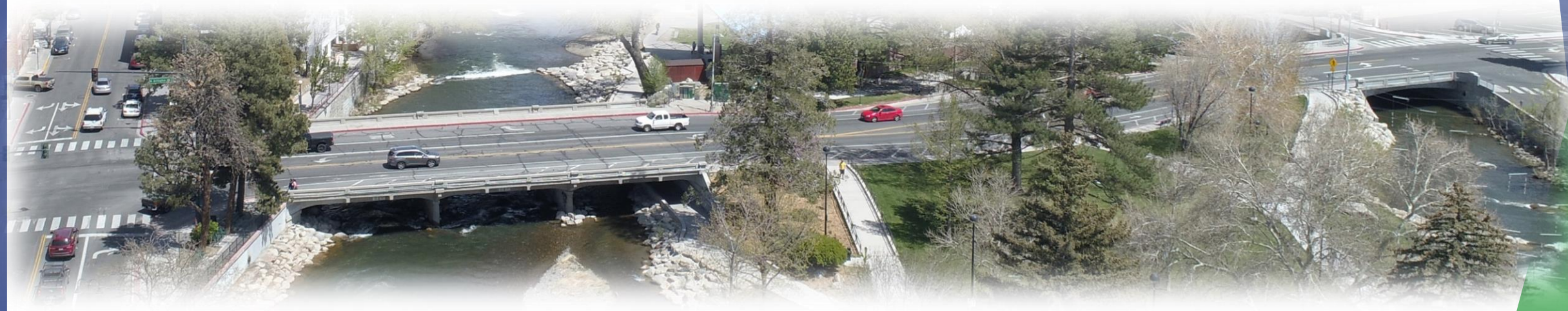
TYPICAL RIVER DIVERSION BARRIER
NTS



SETTLING RESERVOIR SECTION
NTS

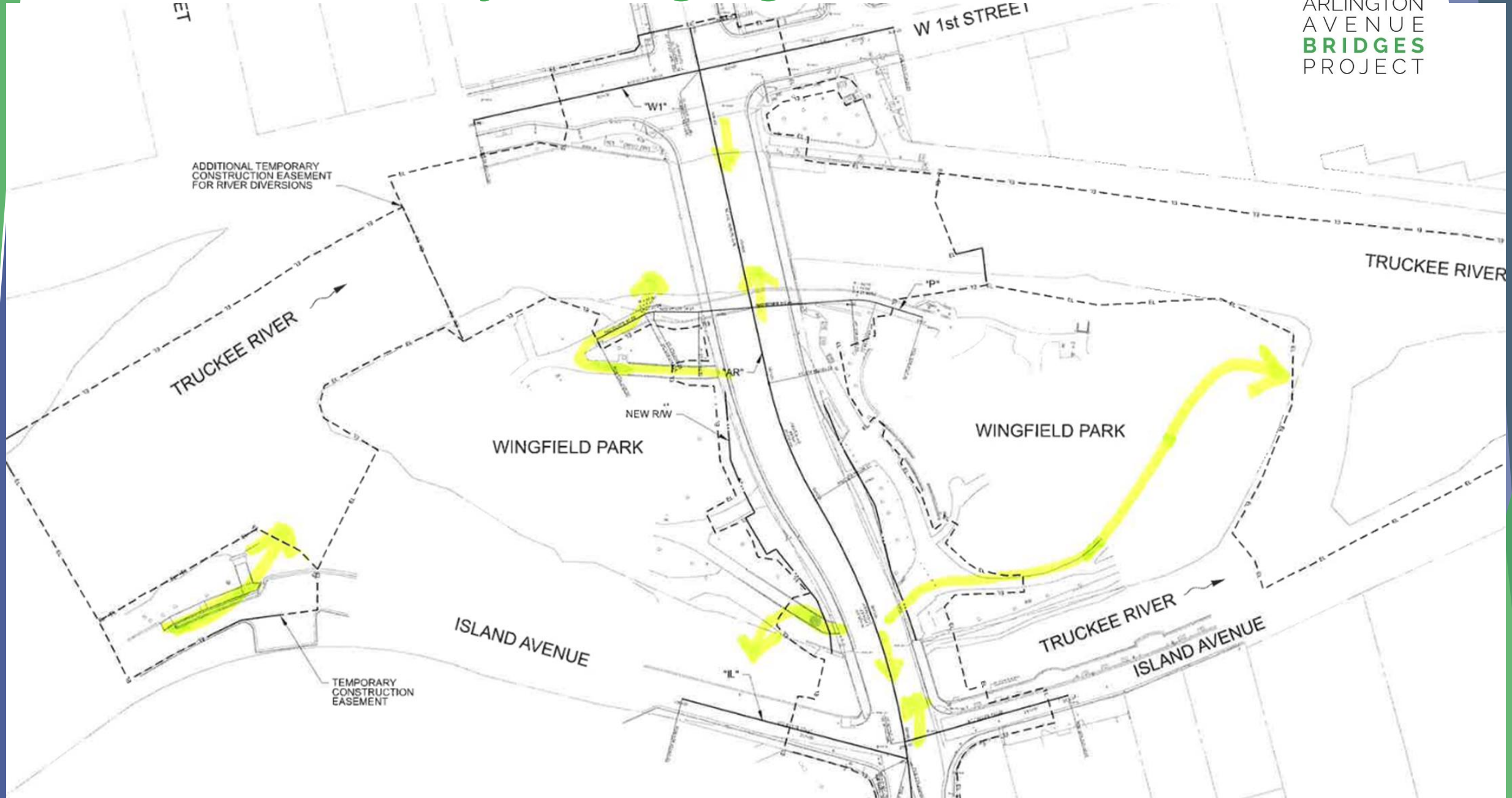
ARLINGTON AVENUE BRIDGES PROJECT

Constructability / Staging / River Access



Constructability / Staging / River Access

ARLINGTON AVENUE BRIDGES PROJECT



Misc. Comments

ARLINGTON AVENUE BRIDGES PROJECT

1. Removal sheets give the impression that the contractor can remove the entire area from the onset of the project. If these sheet are to be included they should clearly identify what removal can take place during bridge construction and what needs to remain in place until final restoration. In addition, when item is removed, is the contractor's property, is it to be disposed or given to owner? 2. Are there items that need to be removed, stored and reinstalled? All river walk items are unique to the river walk and should be given to the City. 3. Has project sequencing been determined? When does the contractor demo South Bridge vs North Bridge?	Kaci	1. What is City's concern with mass removals? 2. Riverwalk items that are to be salvaged and not replaced will be given to the City (including pergola at NE corner of south bridge) 3. Contractor will determine sequencing;
Diagonal pattern on sidewalk (RAAC been made aware)	Barb	Reno Access Advisory Committee - sidewalk will meet ADA requirements;
The CMO among other departments have mentioned the desire for cameras.	Kaci & Others	
The recommendation for bollards to be installed would be the at the north side of Island and to "box" the intersection of 1st and Arlington. Many events have different road closure requests for 1st and Arlington. Some request only the south side of 1st be closed off and allowing East/West traffic on 1st as well as S/B Arlington to East/West to flow as normal. Other promoters utilize 1st Street (running races, vendor booths, etc.) which would requires a hard closure on the Northside of 1st at Arlington.	Kaci / Robbie	Along north and south sides of intersection? Would north of 1st street be used enough? What about east and west of 1st street?

ARLINGTON AVENUE BRIDGES PROJECT

Design Exceptions

Design Exceptions

ARLINGTON AVENUE BRIDGES PROJECT

e) Horizontal Alignment

The City of Reno Design Manual requires horizontal curves on all streets to be separated by a minimum tangent length of 100', unless approved otherwise by the City Engineer.

An exception is requested for the reverse horizontal curves with radii 525' and 300', with the PRC located at Sta. 101+96.67, within Wingfield Park. This reverse curvature is required to match the existing horizontal alignment of Arlington Avenue, minimizing impacts to Wingfield Park and minimizing changes within the USACE Civil Works Project, Section 408 delineation.

f) Vertical Alignment

The City of Reno Design Manual requires all streets to have a minimum grade of 0.6%, unless approved otherwise by the City Engineer.

An exception is requested for the 20' segment just south of the south bridge with a profile grade of 0.55%. This slope is required to tie into the Island Avenue intersection while allowing the south bridge profile to be raised as much as possible.

An exception is also requested for the 138' segment along the north bridge with a profile grade of 0.30%. This slope matches the existing profile along the north bridge, lengthening the distance slightly to ensure the vertical curve does not develop on the south end of the bridge. The high point of the profile is just north of the bridge, and the profile grade steepens once off the south end of the bridge, so storm water will be minimal along the bridge. In addition, the 2% cross slope in conjunction with the 5' bicycle lane plus 2' buffer lane from the lip of gutter to the travel lane will minimize spread width in the travel lane.

Design Exceptions

ARLINGTON AVENUE BRIDGES PROJECT

j) Curb Returns

The City of Reno Design Manual requires curb returns to have a minimum face of curb radii of 20 feet on local streets, 25 feet on collector streets, and 30 feet on minor arterial streets unless specifically approved otherwise.

The curb returns at the intersection of Island Avenue and Arlington Avenue are:

Northwest corner: Design is:	12’	(Existing is 12’)
Northeast corner: Design is:	15’	(Existing is 15’)
Southeast corner: Existing (to remain) is:	15’	
Southwest corner: Existing (to remain) is:	40’	

The curb returns at the intersection of West First Street and Arlington Avenue are:

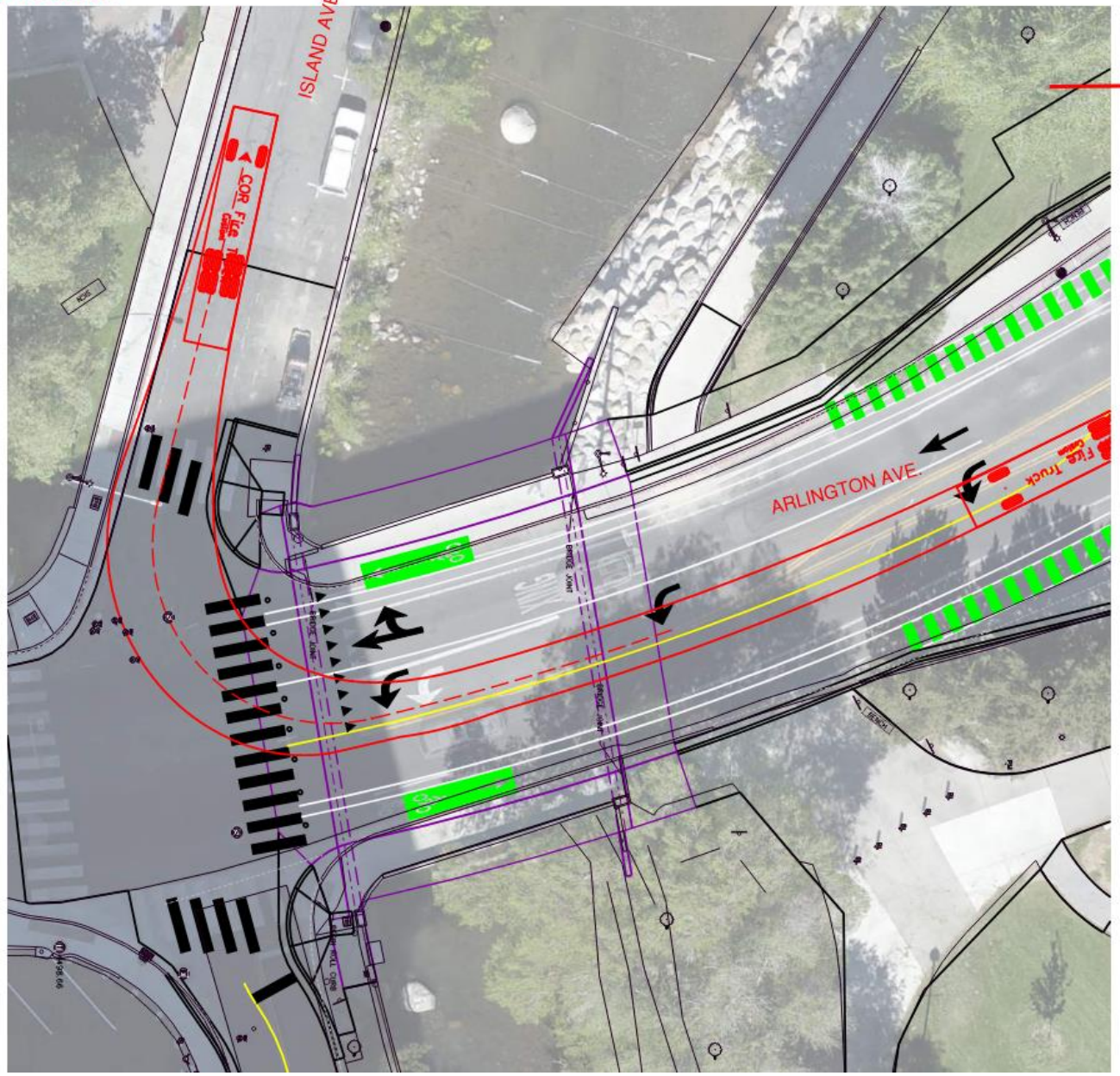
Northwest corner: Existing (to remain) is:	5’	
Northeast corner: Existing (to remain) is:	15’	
Southeast corner: Design is:	23.5’	(Existing is 22’)
Southwest corner: Design is:	35’	(Existing is 40’)

An exception is requested for all curb returns with radii less than 30 feet as existing curb return radii are being perpetuated. The existing curb returns are constrained by existing buildings, right of way, and bridge structures.

AutoTurn movements for the City of Reno Fire Truck are included as attachments. For the southbound to westbound movement, the fire truck would need to be beyond the left turn lane to maneuver the right-hand turn without over-tracking the new pedestrian ramp bulb out. If the optional mid-block crossing is included in the design to eliminate the pedestrian bulb-outs, the fire truck would be able to maneuver around the mid-block crossing into the left-hand turn lane for the right-hand turn movement. There are no issues with the northbound to westbound movement.

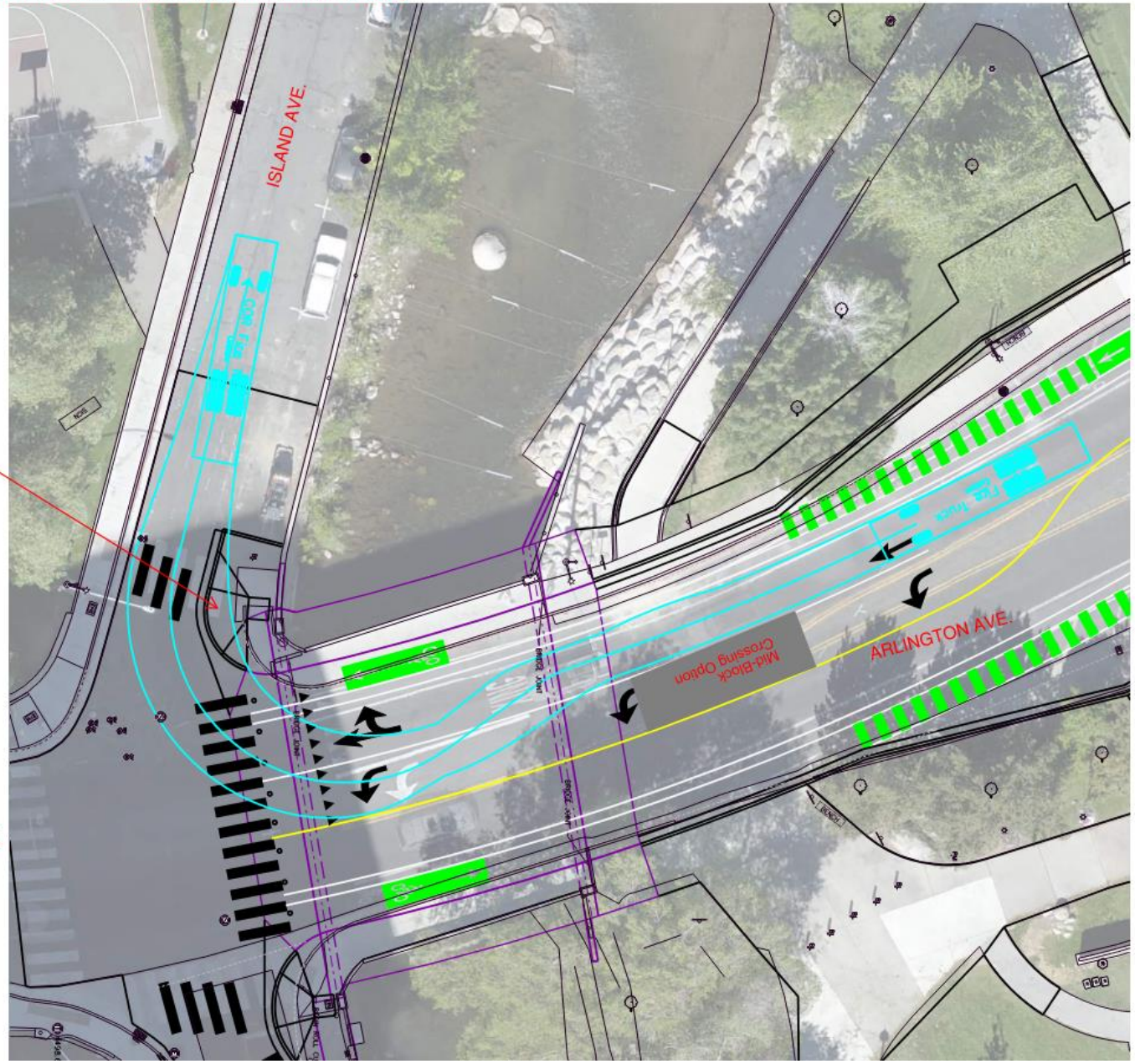
Fire Truck Turning Movement

City of Reno Fire Truck Southbound to Westbound



Fire Truck Turning Movement

City of Reno Fire Truck Southbound to Westbound with Optional Mid-Block Crossing



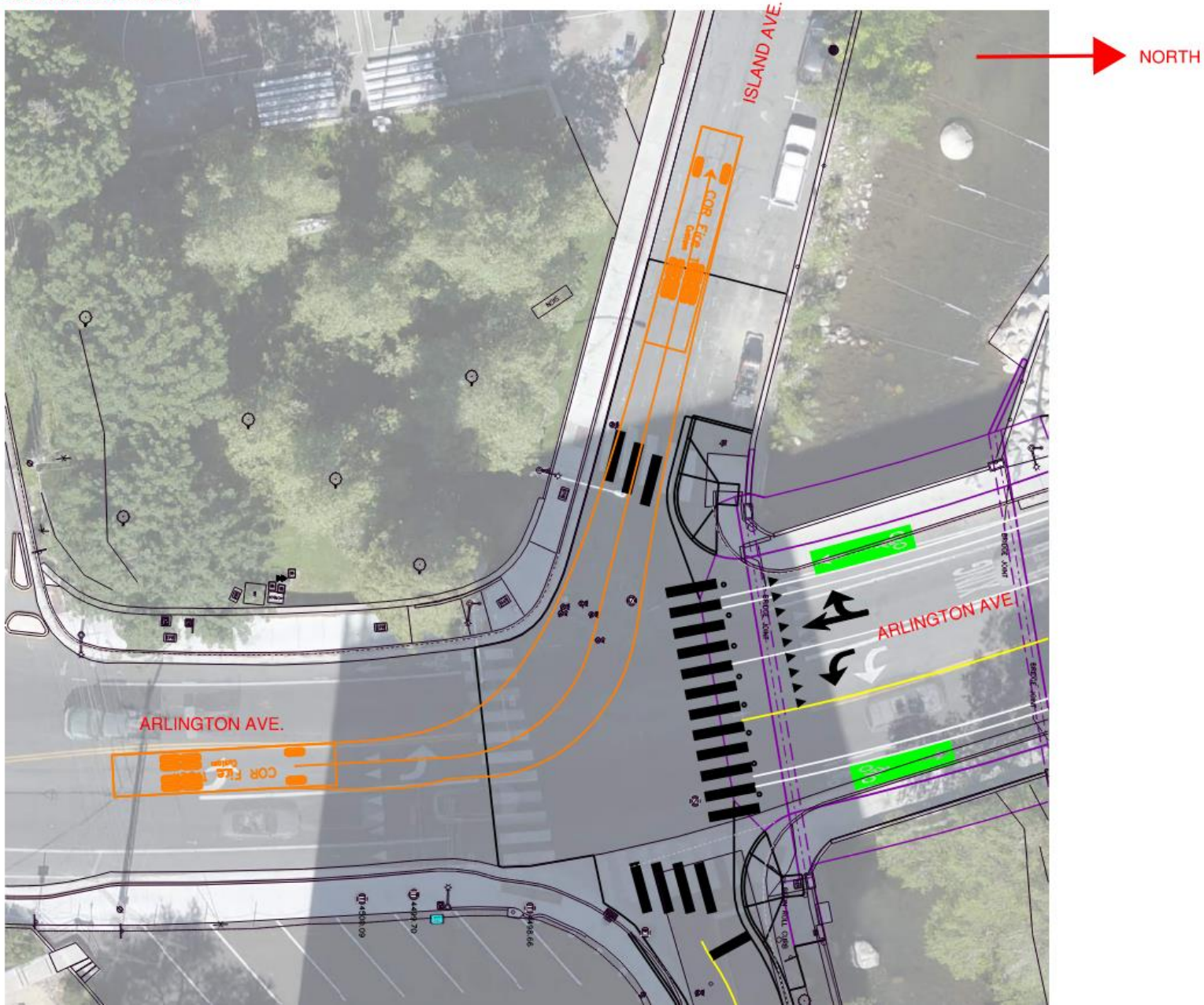
If Mid-Block Crossing Allowed, No Bulb-Outs

NORTH

ARLINGTON AVENUE BRIDGES PROJECT

Fire Truck Turning Movement

City of Reno Fire Truck Northbound to Westbound



ARLINGTON AVENUE BRIDGES PROJECT

Design Exceptions

Discussions with CoR on 5/5 and agreed by RTC:
Place as far back on sidewalk as possible –
Don't' want poles 2.5' from back of curb in middle of our wide 'pedestrian friendly' sidewalk;
Redo light analysis and Adjust light spacing as necessary

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k) Obstructions w/in Sidewalk

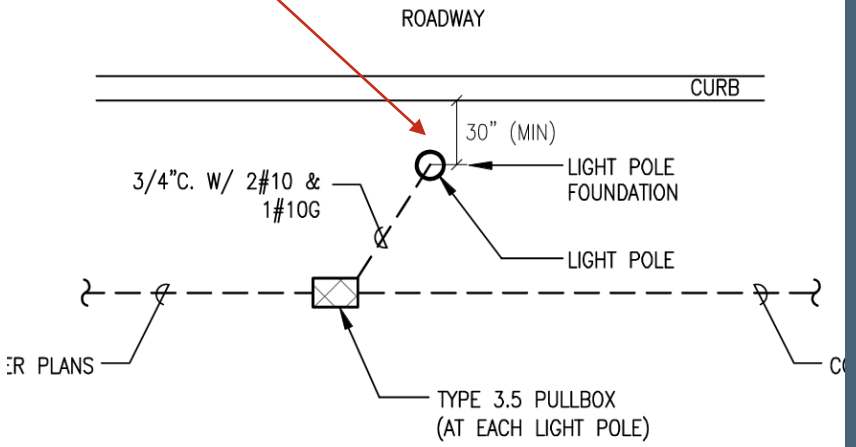
The City of Reno Design Manual requires approval by the City Engineer for any obstructions located within public sidewalks or pedestrian ways.

An exception is requested for the Pedestrian Scale lights, transit route signs, and pedestrian push button signal poles required to be placed within the 8' sidewalks, along the back of sidewalk, along Arlington Avenue. Ensuring uniform lighting distribution across the roadway require the placement of pedestrian scale lights along the back of the sidewalk. ADA requirements limit the ability to place pedestrian push button poles outside of the sidewalk. The extra width provided by the 8' sidewalk versus a standard 5'-6' sidewalk provide adequate mobility around these required obstacles.

l) Hydraulic Freeboard

According to Section 1104.1 of the Truckee Meadows Regional Design Manual, the bridges are required to pass the 100-year design flow with a minimum of 2-feet of freeboard below the bridge low chord. Given the circumstances of the project area, including the nearby intersections of Island Avenue and West First Street with large, developed properties at the intersections, and location within the USACE Section 408 limits with limitations on changes (including placing fill) to the USACE Civil Works project defined by the 14,000 cfs inundation limits, the CoR, USACE, CTWCD, and TRFMA have agreed via separate documentation to the following, lesser bridge hydraulic criteria:

* At a minimum, to maintain existing drainage conditions
* To not raise the existing WSEs for the CTWCD regulatory 14,000 cfs flood
* To not increase the existing area of inundation created by the CTWCD regulatory 14,000 cfs flood
* To not raise the exiting WSEs for the TRFMA 100-year flood event
* To not increase the exiting area of inundation created by the TRFMA 100-year flood event.



POLE INSTALLATION DETAIL

SCALE: NONE

Project Schedule

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* Schedule changes highlighted in red

Thank You for Participating!

jtortelli@rtcwashoe.com

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RENO

NEVADA DOT SAFE AND CONNECTED

U.S. Department of Transportation
Federal Highway Administration

US Army Corps of Engineers

Truckee Carson Water Conservancy District of Nevada

RTC

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1. Matt Brezina/COR parks – asked that all new lights on poles have a receptacle on the top so city can install holiday lights and/or string lights (this would apply to all lights on poles on Arlington Ave and in park if we are replacing them.

2. Matt Brezina/COR parks – special events users asked for a water fountain on the east side of the island – need a water line from a source over the bridge (assume from north side) and into the east side of the park.

3. see if we specified removal of existing tall light poles at back of walk in park on Arlington Ave east side near amphitheater and/or discuss. I believe these would be removed if new pedestrian scaled lights are going in.