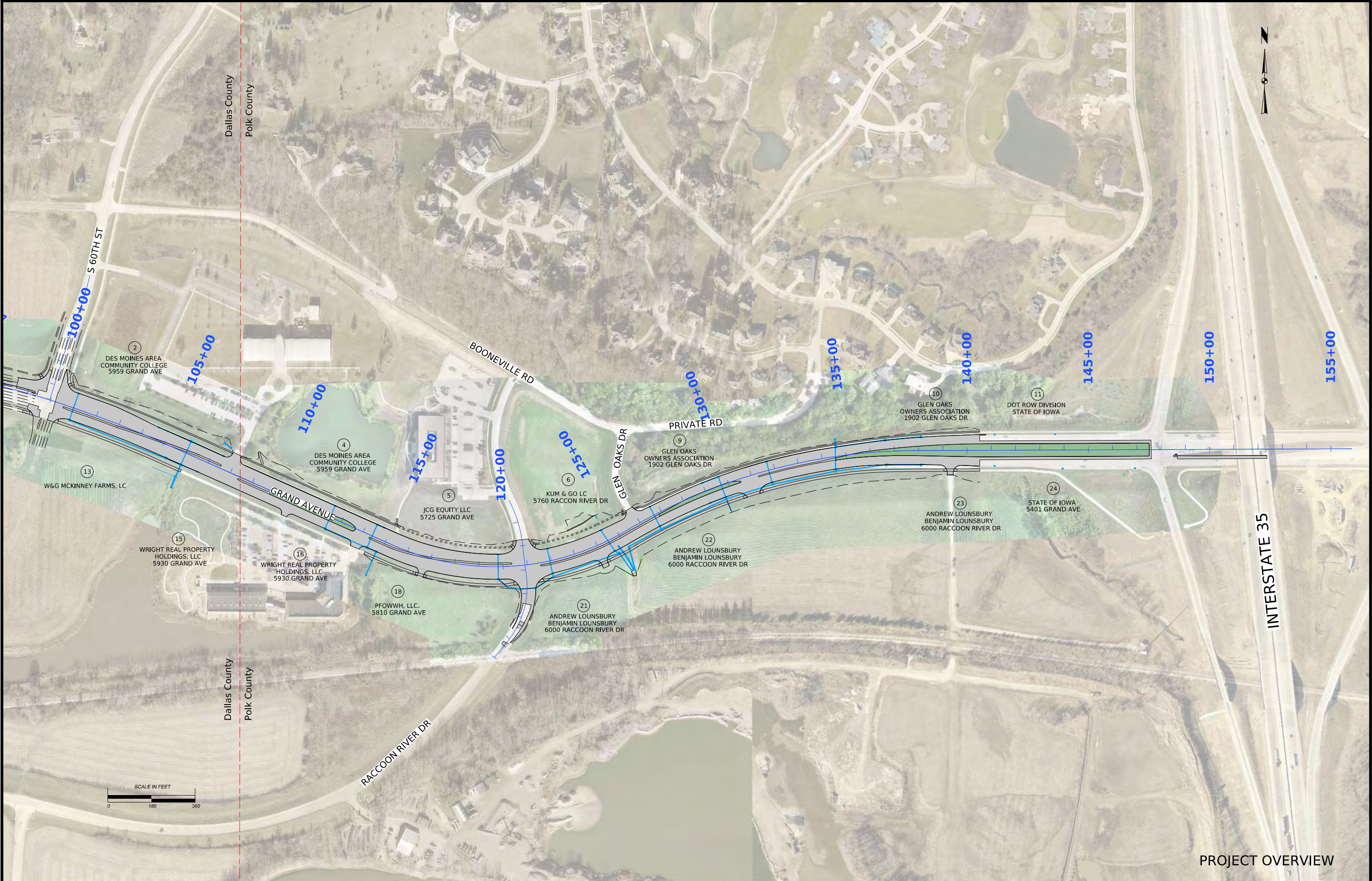
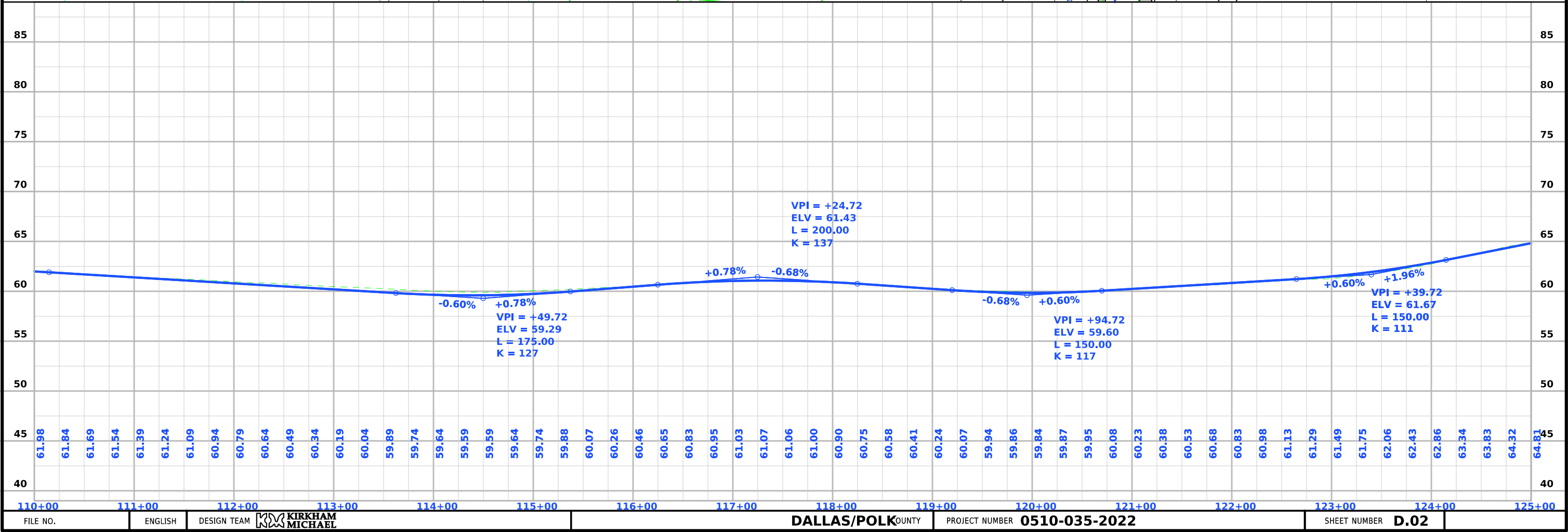
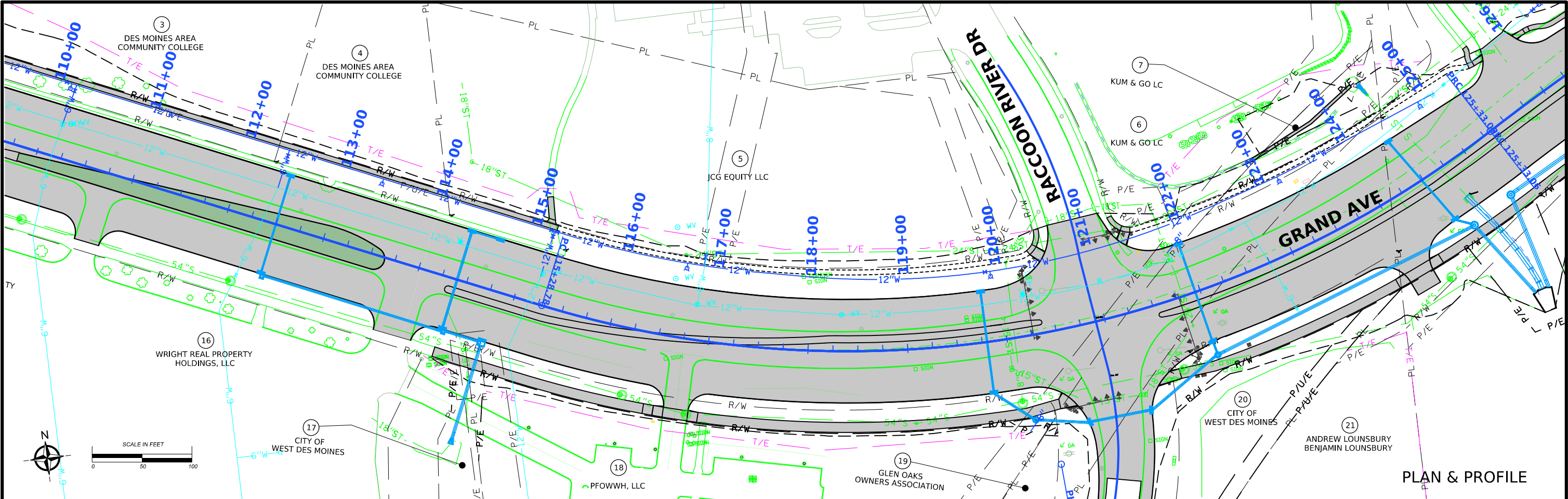
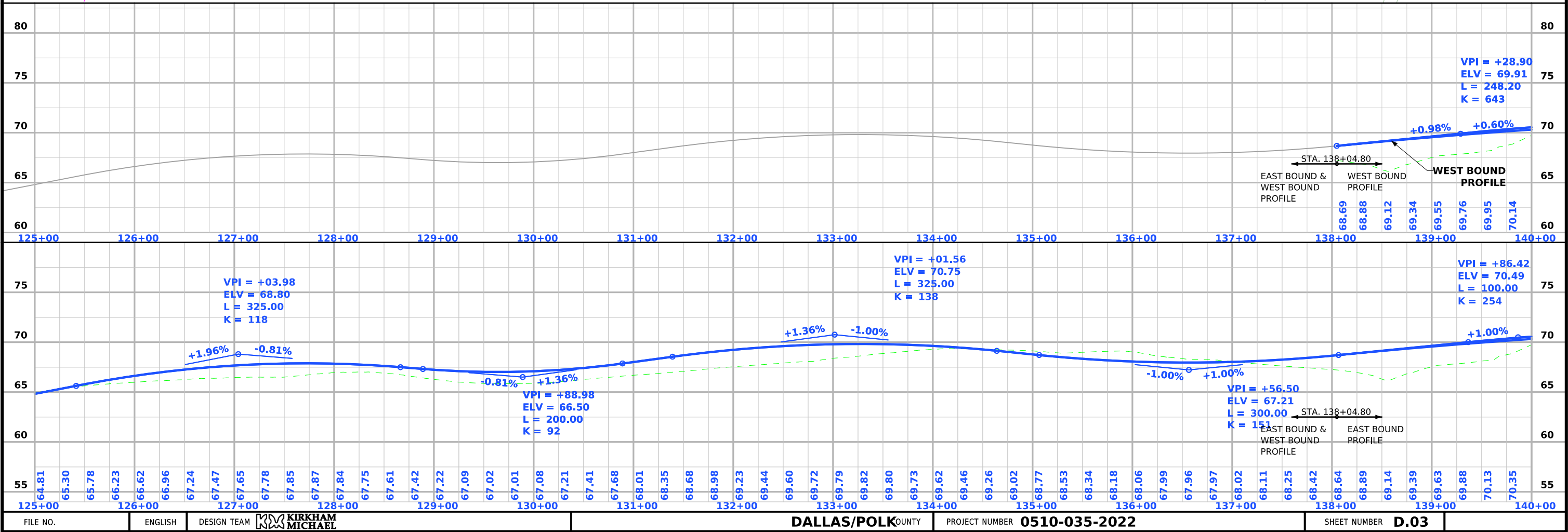
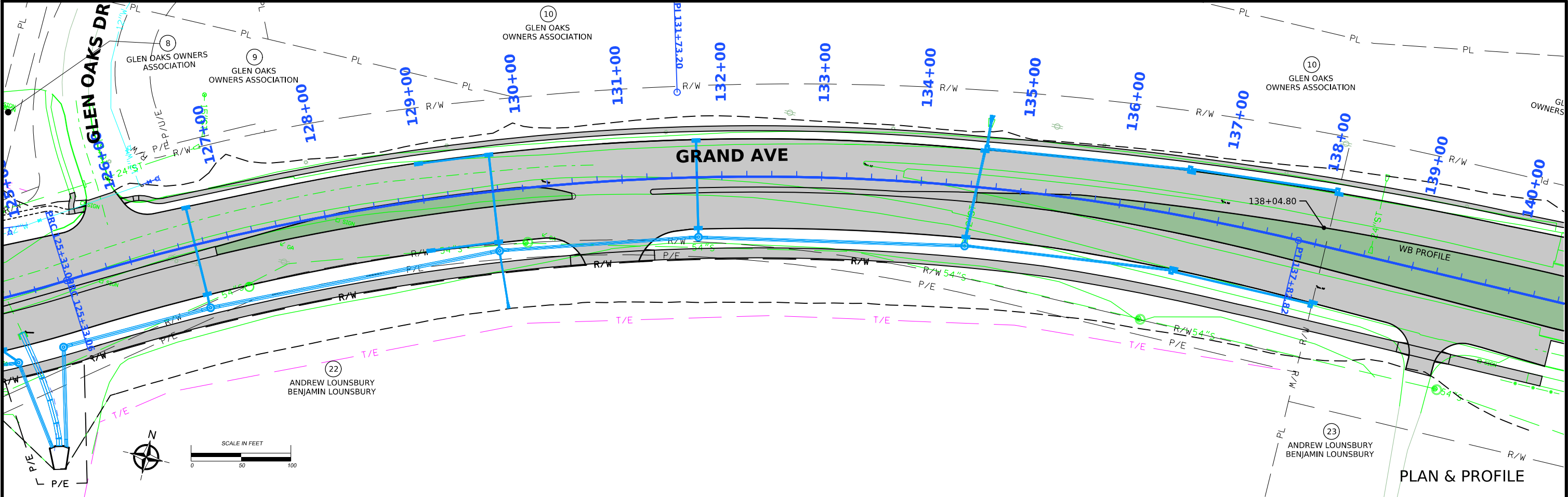
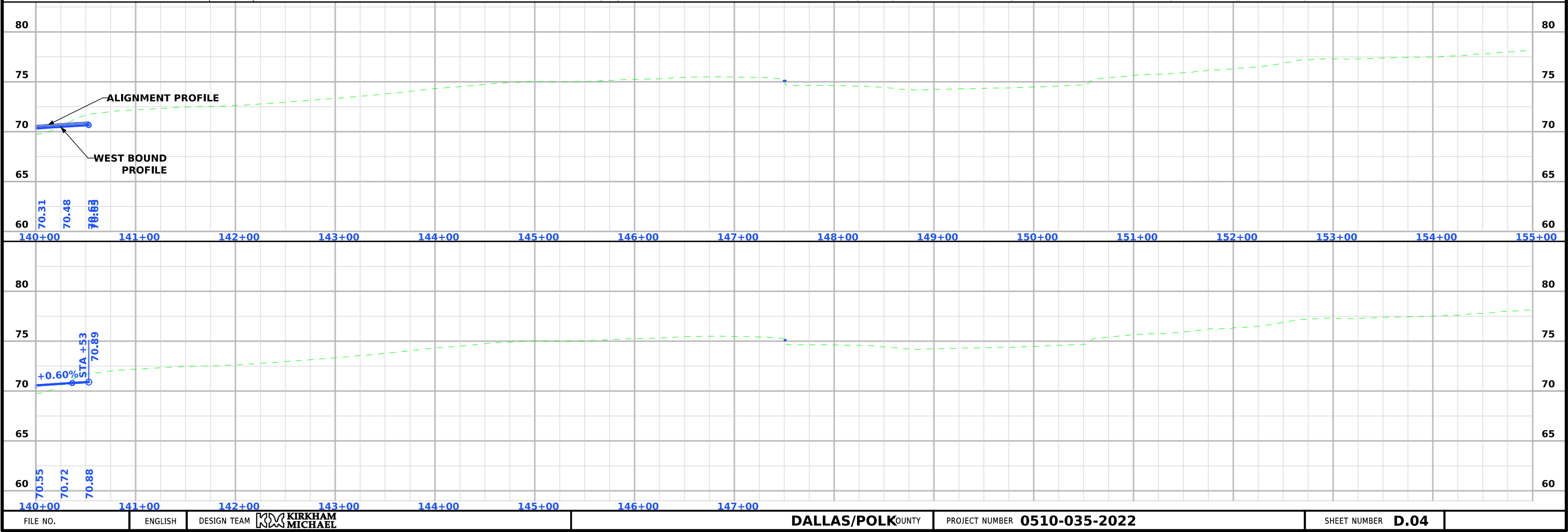
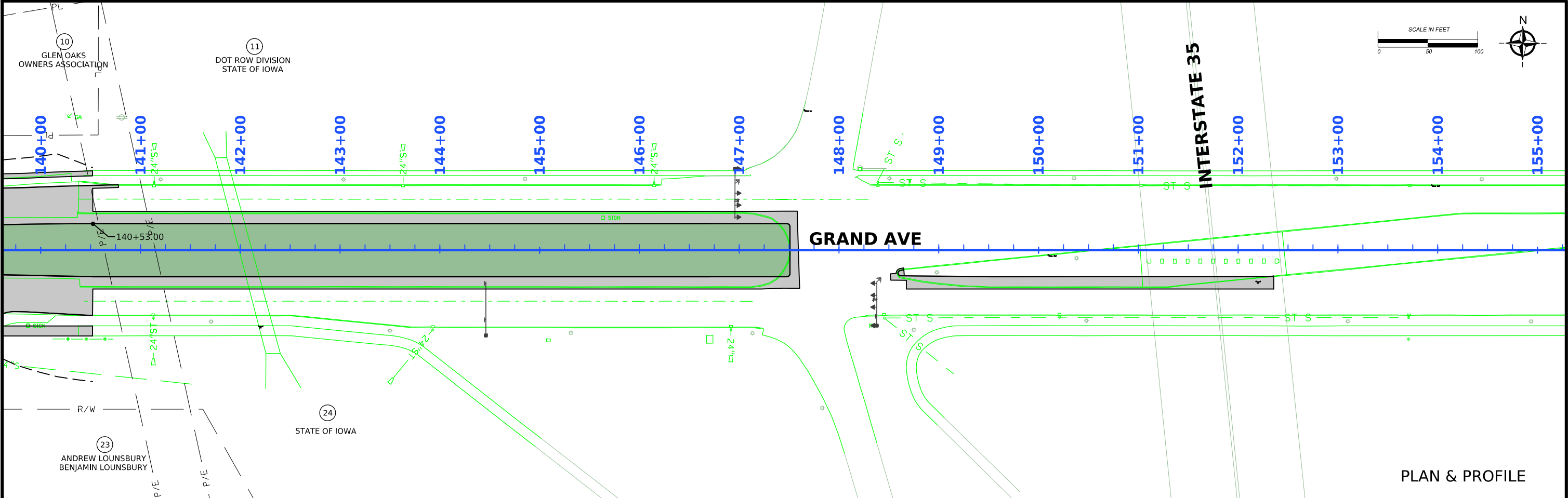


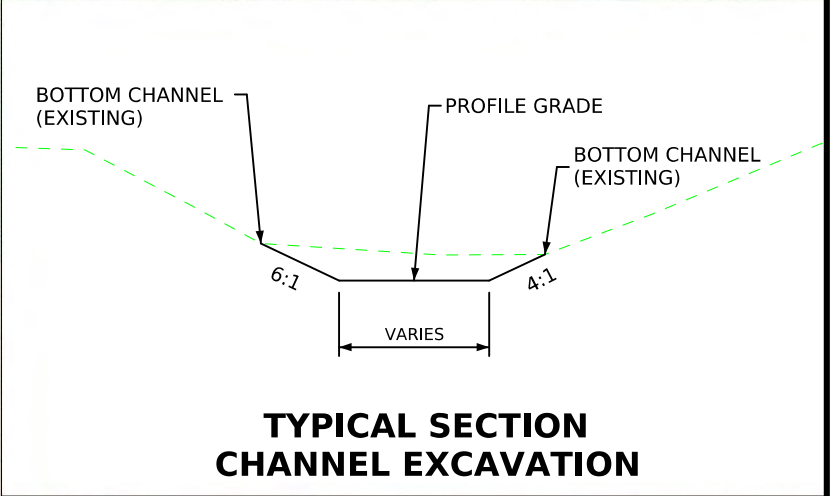
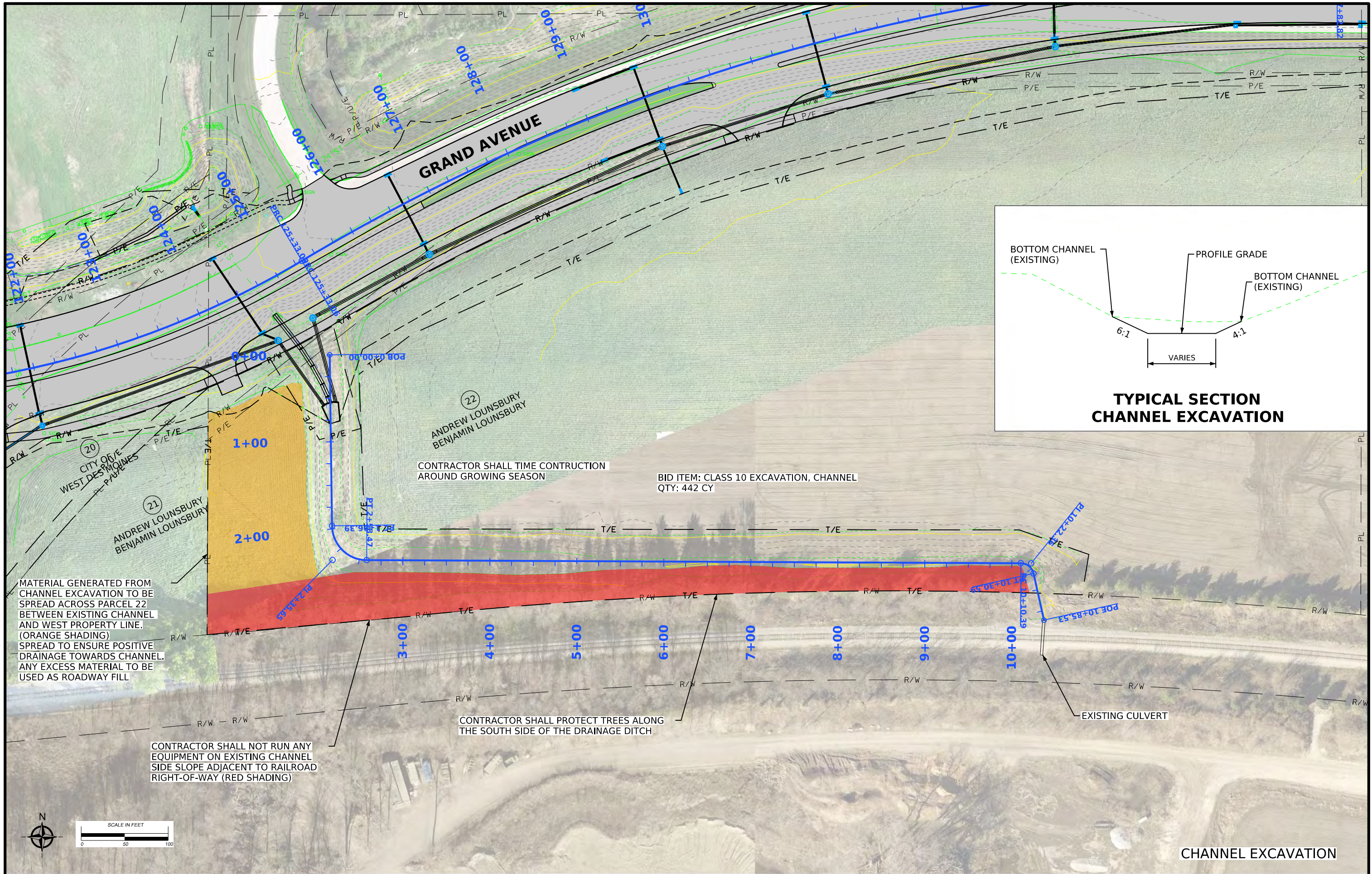


PROJECT OVERVIEW









MATERIAL GENERATED FROM CHANNEL EXCAVATION TO BE SPREAD ACROSS PARCEL 22 BETWEEN EXISTING CHANNEL AND WEST PROPERTY LINE. (ORANGE SHADING) SPREAD TO ENSURE POSITIVE DRAINAGE TOWARDS CHANNEL. ANY EXCESS MATERIAL TO BE USED AS ROADWAY FILL

CONTRACTOR SHALL NOT RUN ANY EQUIPMENT ON EXISTING CHANNEL SIDE SLOPE ADJACENT TO RAILROAD RIGHT-OF-WAY (RED SHADING)

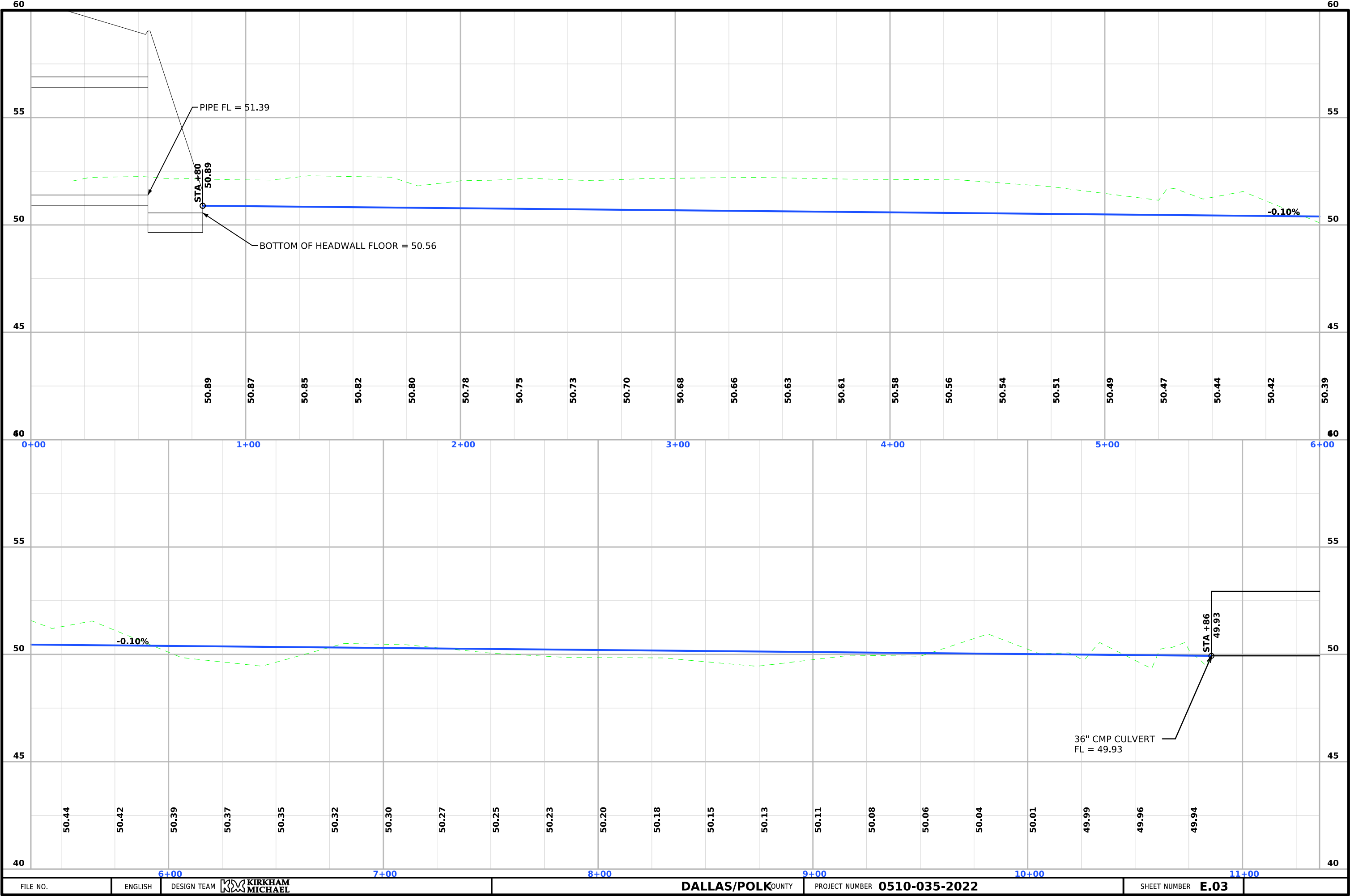
CONTRACTOR SHALL TIME CONSTRUCTION AROUND GROWING SEASON

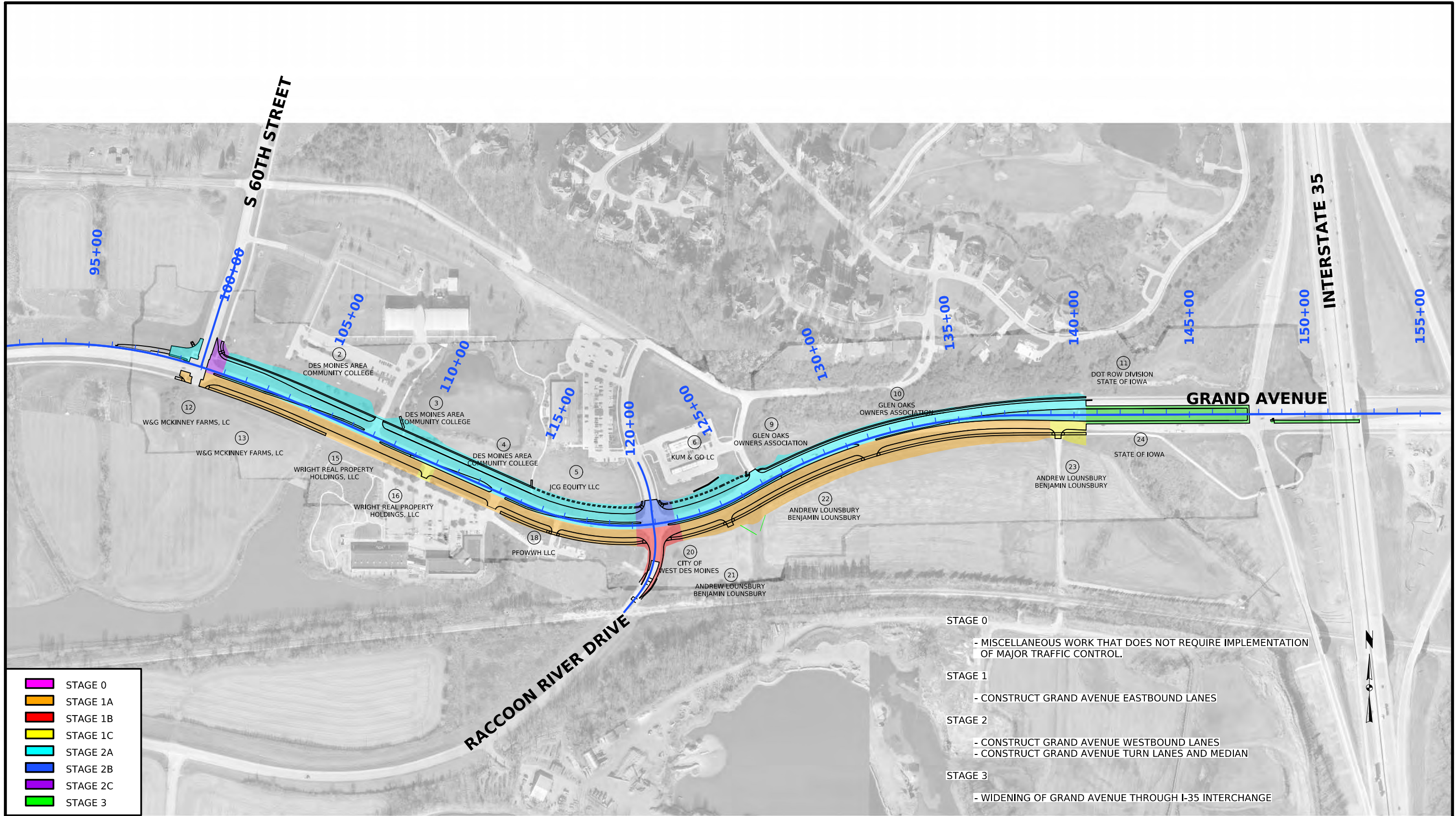
BID ITEM: CLASS 10 EXCAVATION, CHANNEL QTY: 442 CY

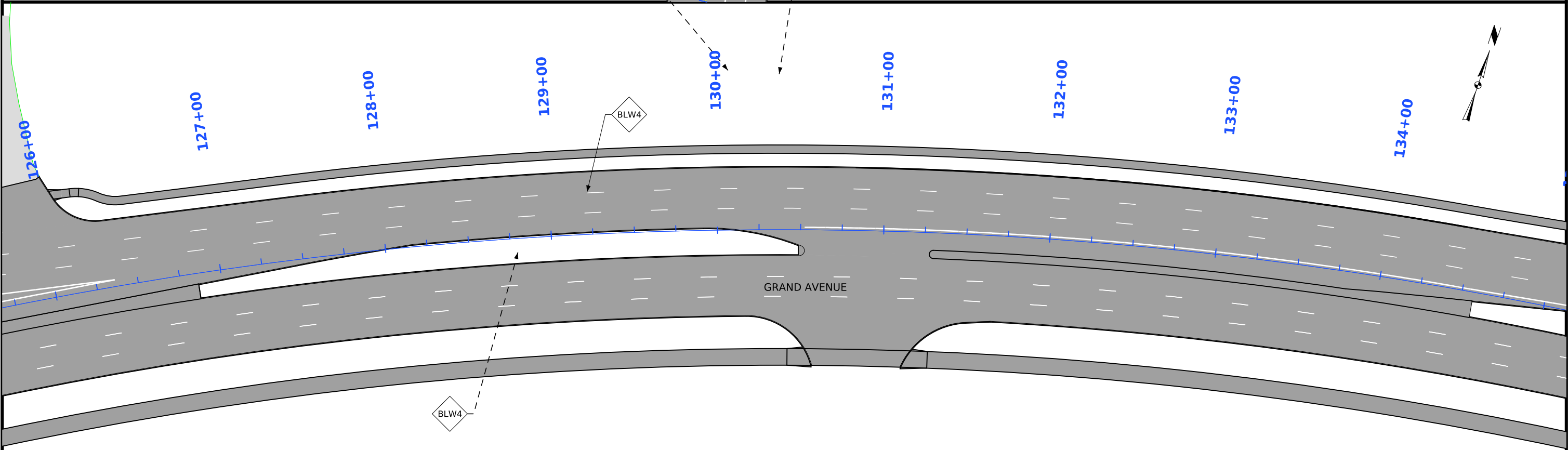
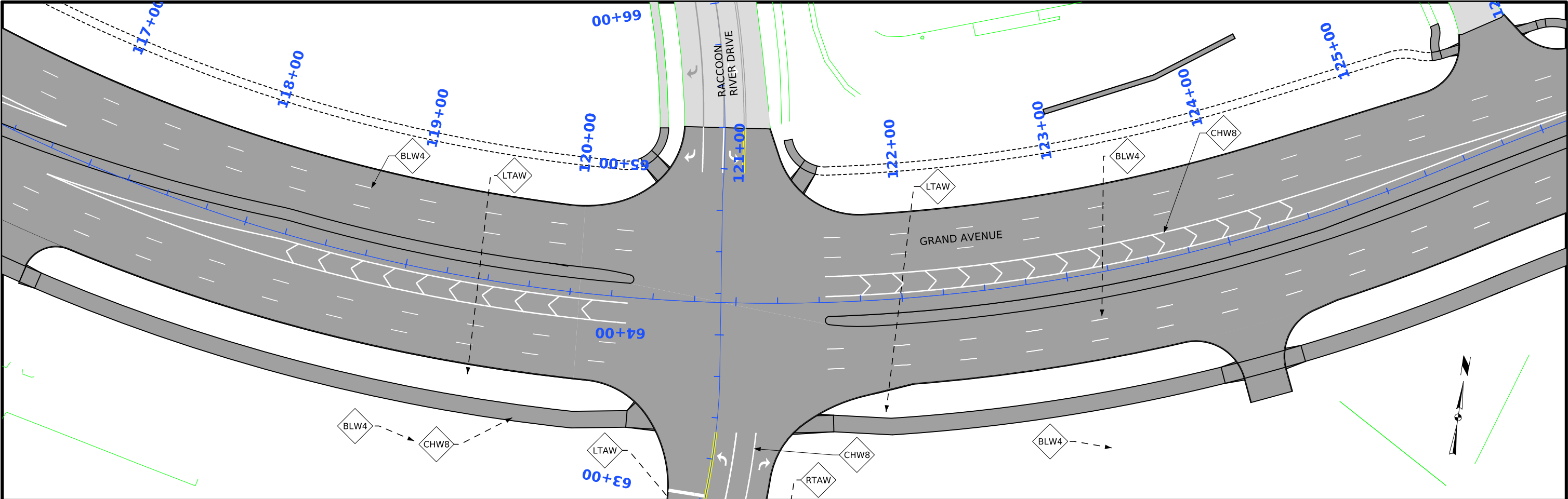
CONTRACTOR SHALL PROTECT TREES ALONG THE SOUTH SIDE OF THE DRAINAGE DITCH

EXISTING CULVERT

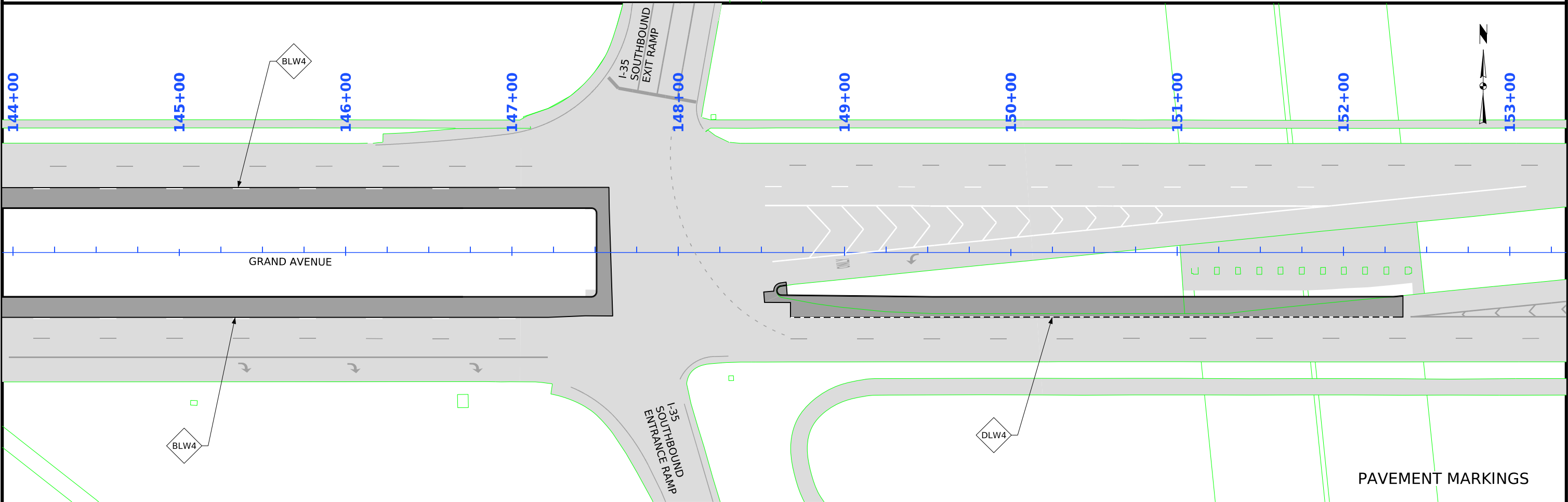
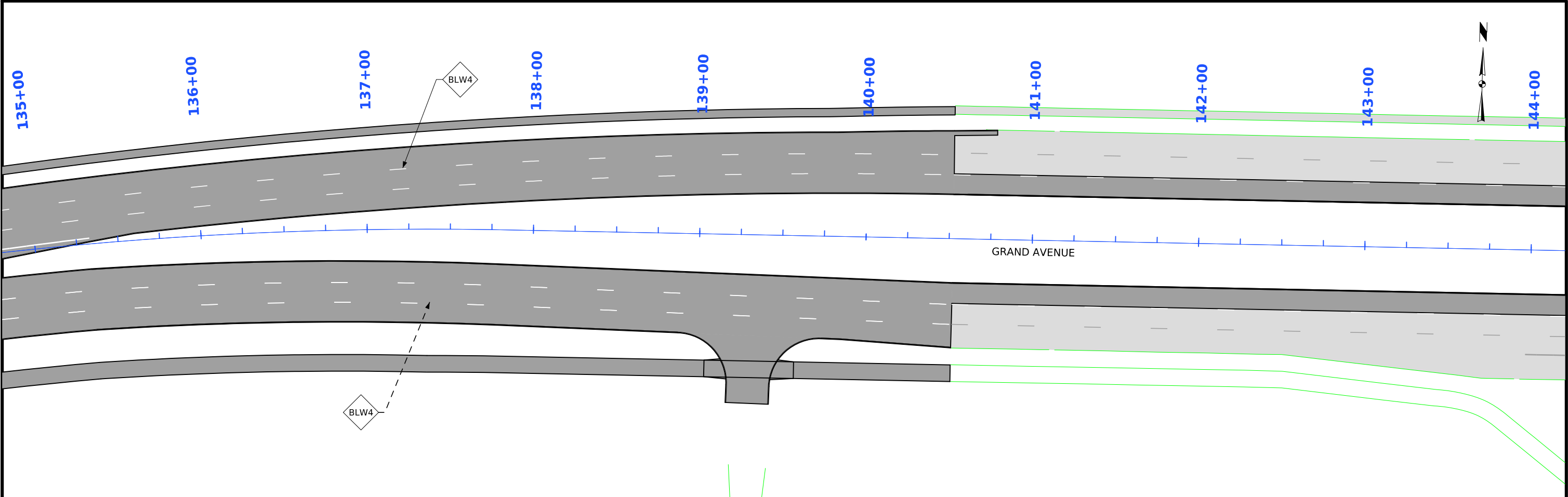
CHANNEL EXCAVATION



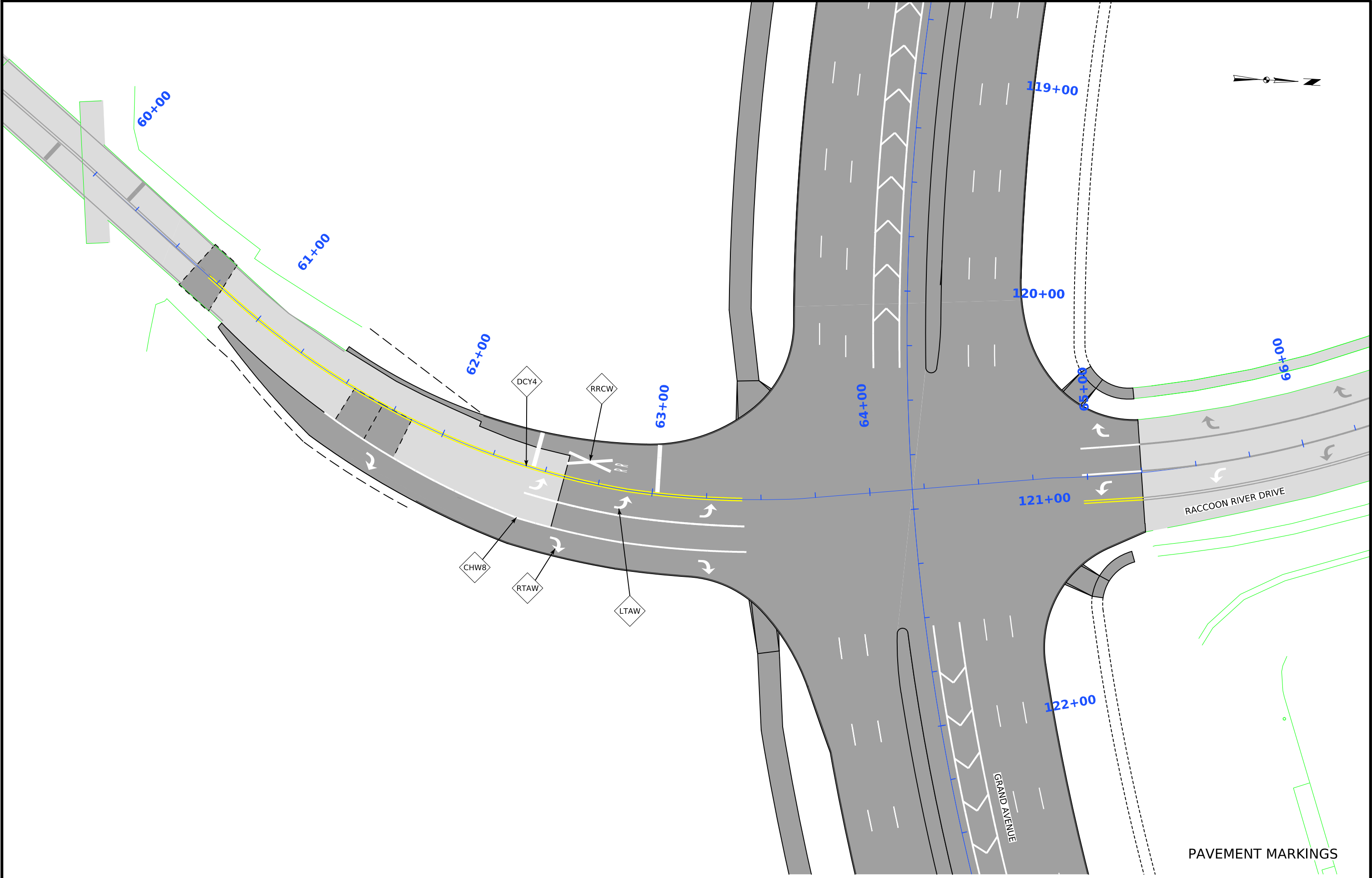




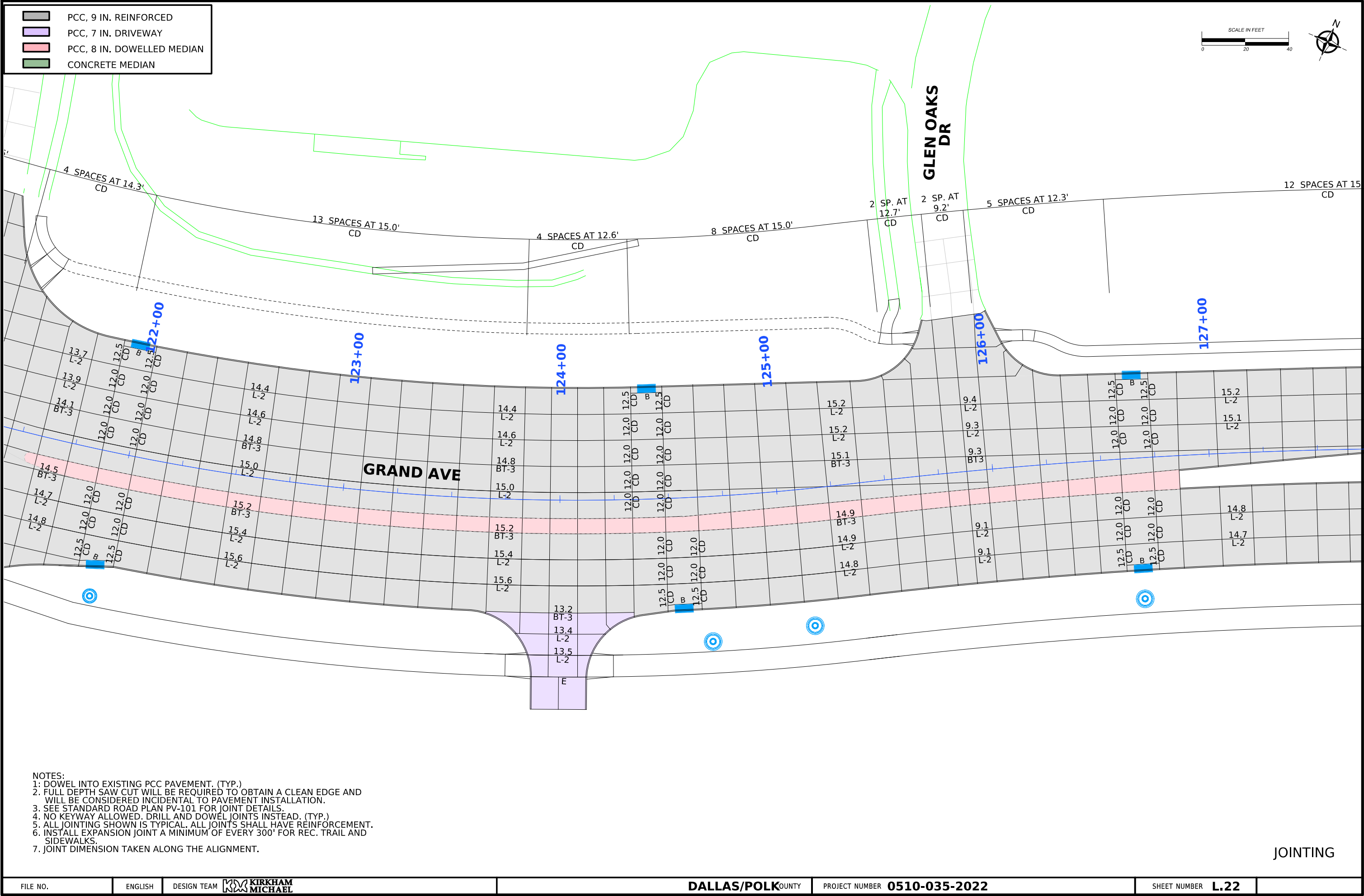
PAVEMENT MARKINGS

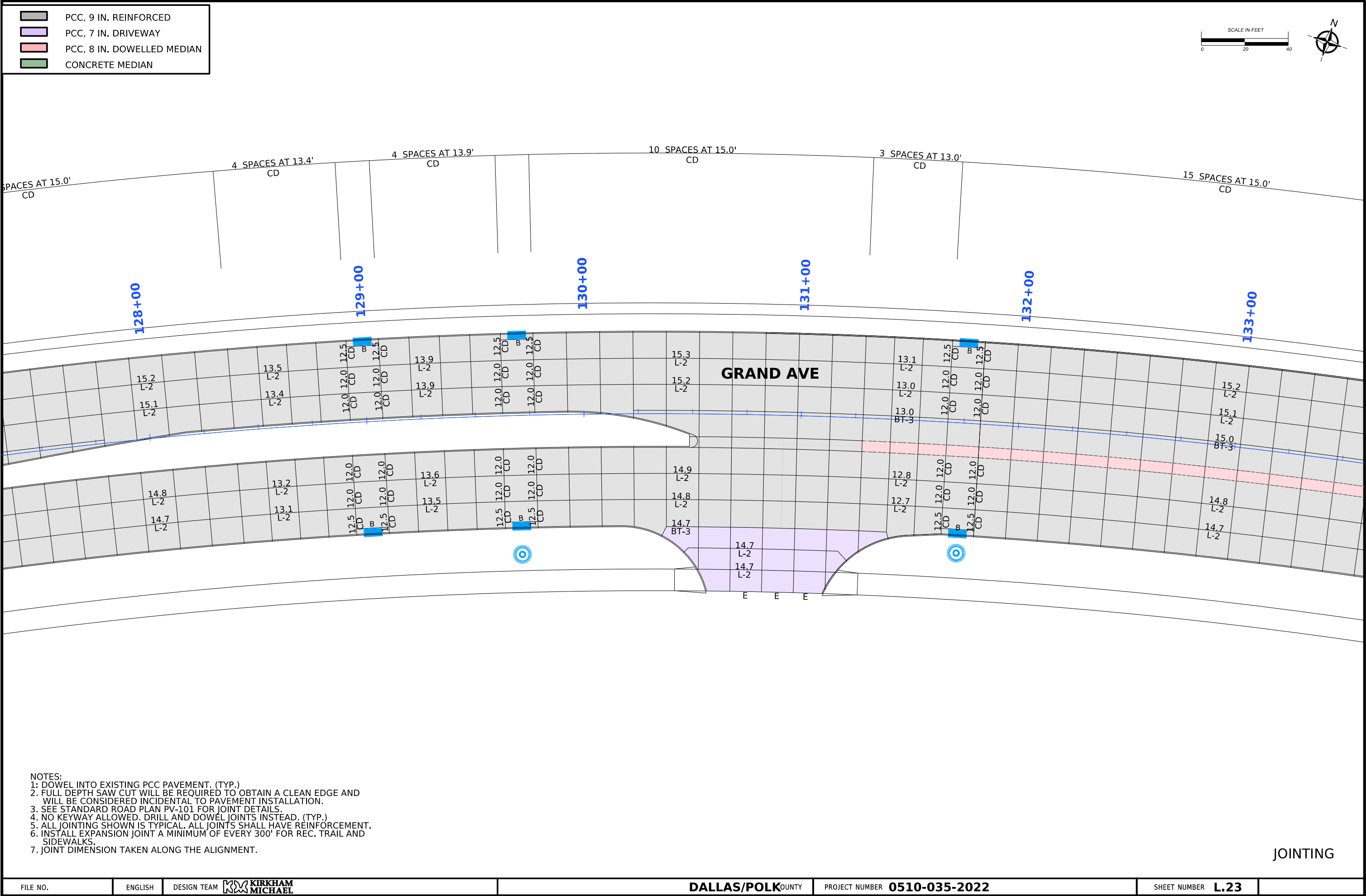


PAVEMENT MARKINGS



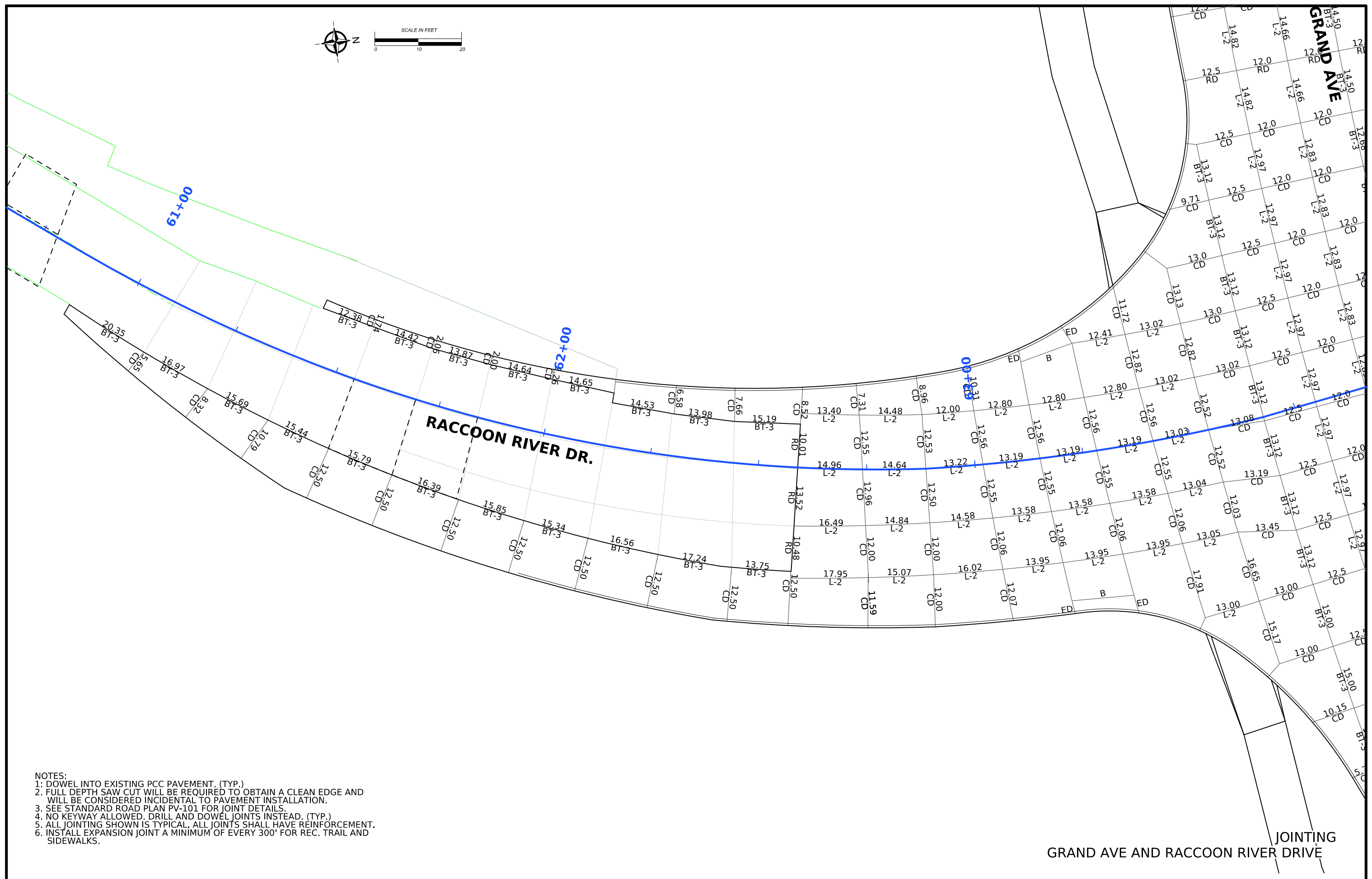
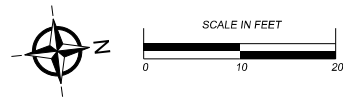
PAVEMENT MARKINGS





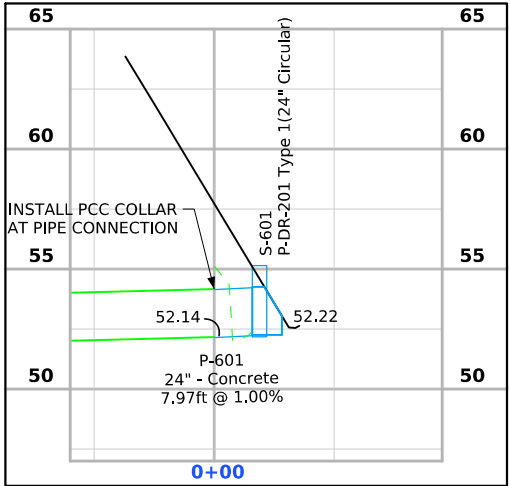
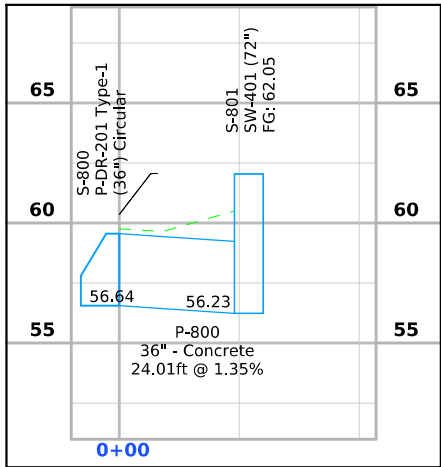
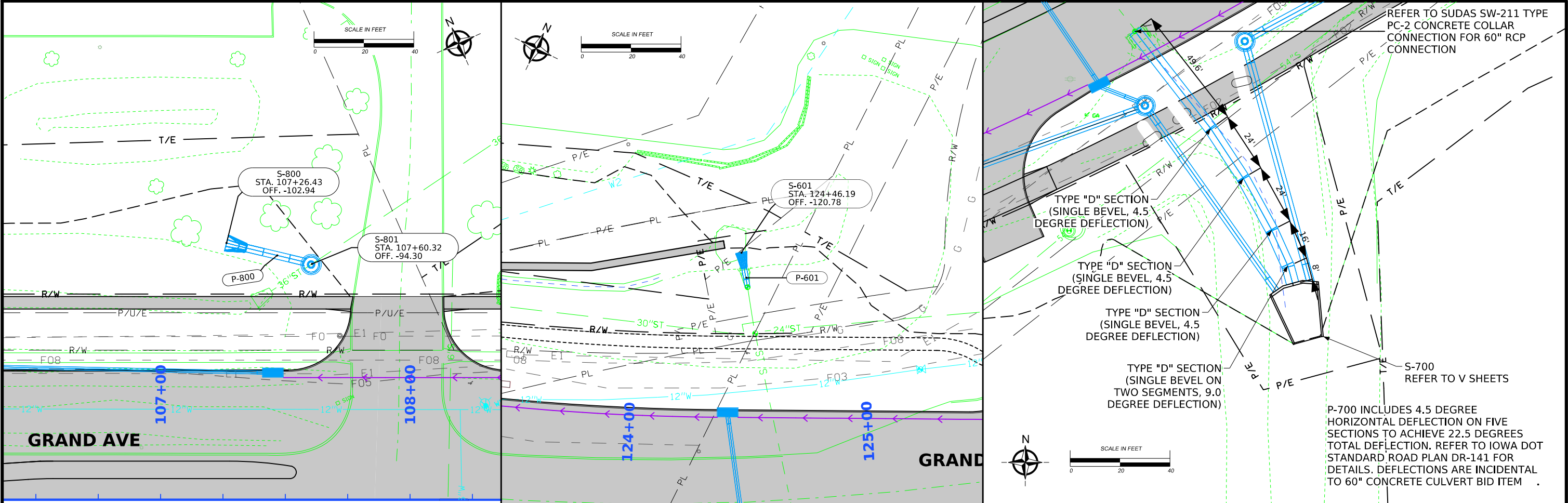




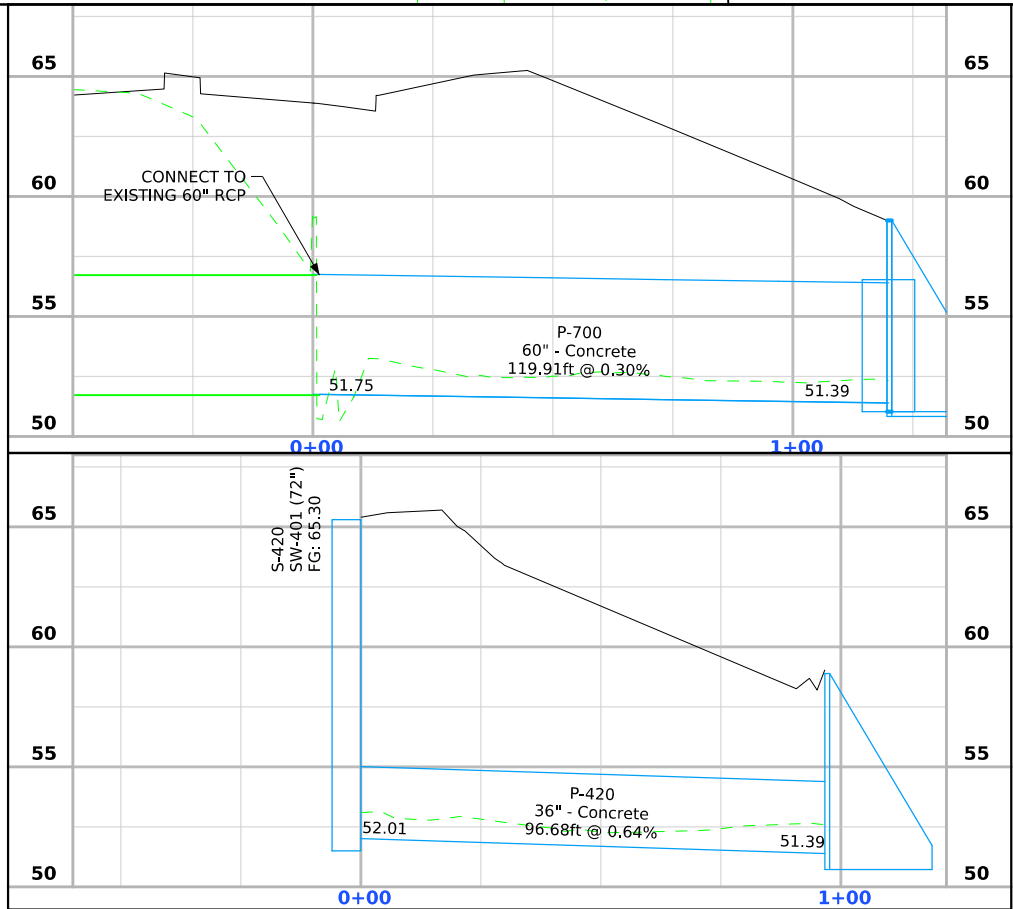


- NOTES:
1. DOWEL INTO EXISTING PCC PAVEMENT. (TYP.)
2. FULL DEPTH SAW CUT WILL BE REQUIRED TO OBTAIN A CLEAN EDGE AND WILL BE CONSIDERED INCIDENTAL TO PAVEMENT INSTALLATION.
3. SEE STANDARD ROAD PLAN PV-101 FOR JOINT DETAILS.
4. NO KEYWAY ALLOWED. DRILL AND DOWEL JOINTS INSTEAD. (TYP.)
5. ALL JOINTING SHOWN IS TYPICAL. ALL JOINTS SHALL HAVE REINFORCEMENT.
6. INSTALL EXPANSION JOINT A MINIMUM OF EVERY 300' FOR REC. TRAIL AND SIDEWALKS.

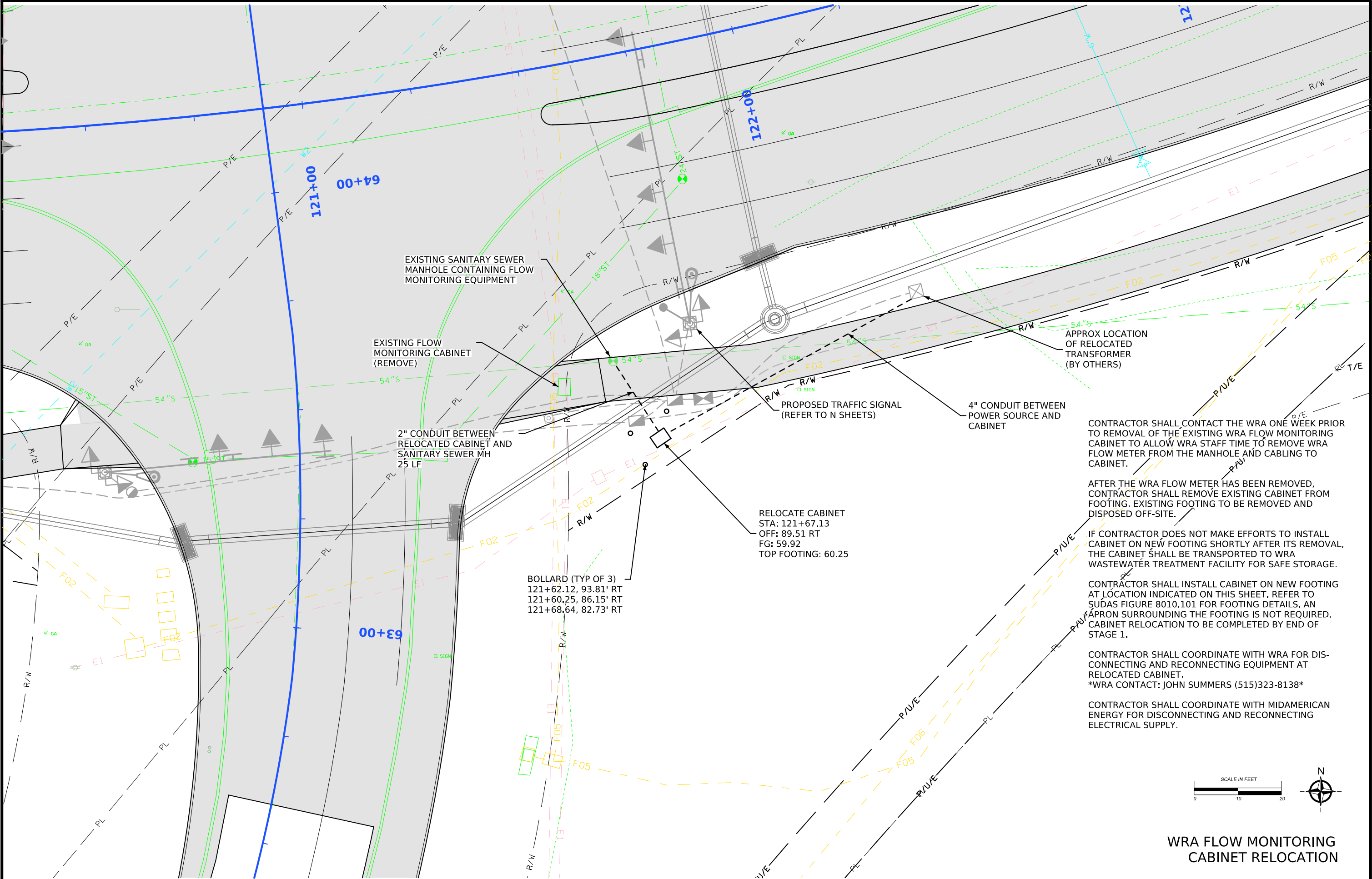
JOINTING
GRAND AVE AND RACCOON RIVER DRIVE



REINSTALL ORIFACE PLATE ON S-601
REFER TO B.11 FOR DETAILS



STORM SEWER



EXISTING SANITARY SEWER
MANHOLE CONTAINING FLOW
MONITORING EQUIPMENT

EXISTING FLOW
MONITORING CABINET
(REMOVE)

2" CONDUIT BETWEEN
RELOCATED CABINET AND
SANITARY SEWER MH
25 LF

PROPOSED TRAFFIC SIGNAL
(REFER TO N SHEETS)

4" CONDUIT BETWEEN
POWER SOURCE AND
CABINET

CONTRACTOR SHALL CONTACT THE WRA ONE WEEK PRIOR
TO REMOVAL OF THE EXISTING WRA FLOW MONITORING
CABINET TO ALLOW WRA STAFF TIME TO REMOVE WRA
FLOW METER FROM THE MANHOLE AND CABLING TO
CABINET.

AFTER THE WRA FLOW METER HAS BEEN REMOVED,
CONTRACTOR SHALL REMOVE EXISTING CABINET FROM
FOOTING. EXISTING FOOTING TO BE REMOVED AND
DISPOSED OFF-SITE.

IF CONTRACTOR DOES NOT MAKE EFFORTS TO INSTALL
CABINET ON NEW FOOTING SHORTLY AFTER ITS REMOVAL,
THE CABINET SHALL BE TRANSPORTED TO WRA
WASTEWATER TREATMENT FACILITY FOR SAFE STORAGE.

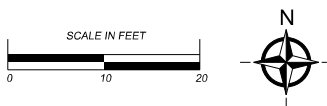
CONTRACTOR SHALL INSTALL CABINET ON NEW FOOTING
AT LOCATION INDICATED ON THIS SHEET. REFER TO
SUDAS FIGURE 8010.101 FOR FOOTING DETAILS. AN
APRON SURROUNDING THE FOOTING IS NOT REQUIRED.
CABINET RELOCATION TO BE COMPLETED BY END OF
STAGE 1.

CONTRACTOR SHALL COORDINATE WITH WRA FOR DIS-
CONNECTING AND RECONNECTING EQUIPMENT AT
RELOCATED CABINET.
WRA CONTACT: JOHN SUMMERS (515)323-8138

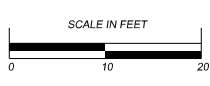
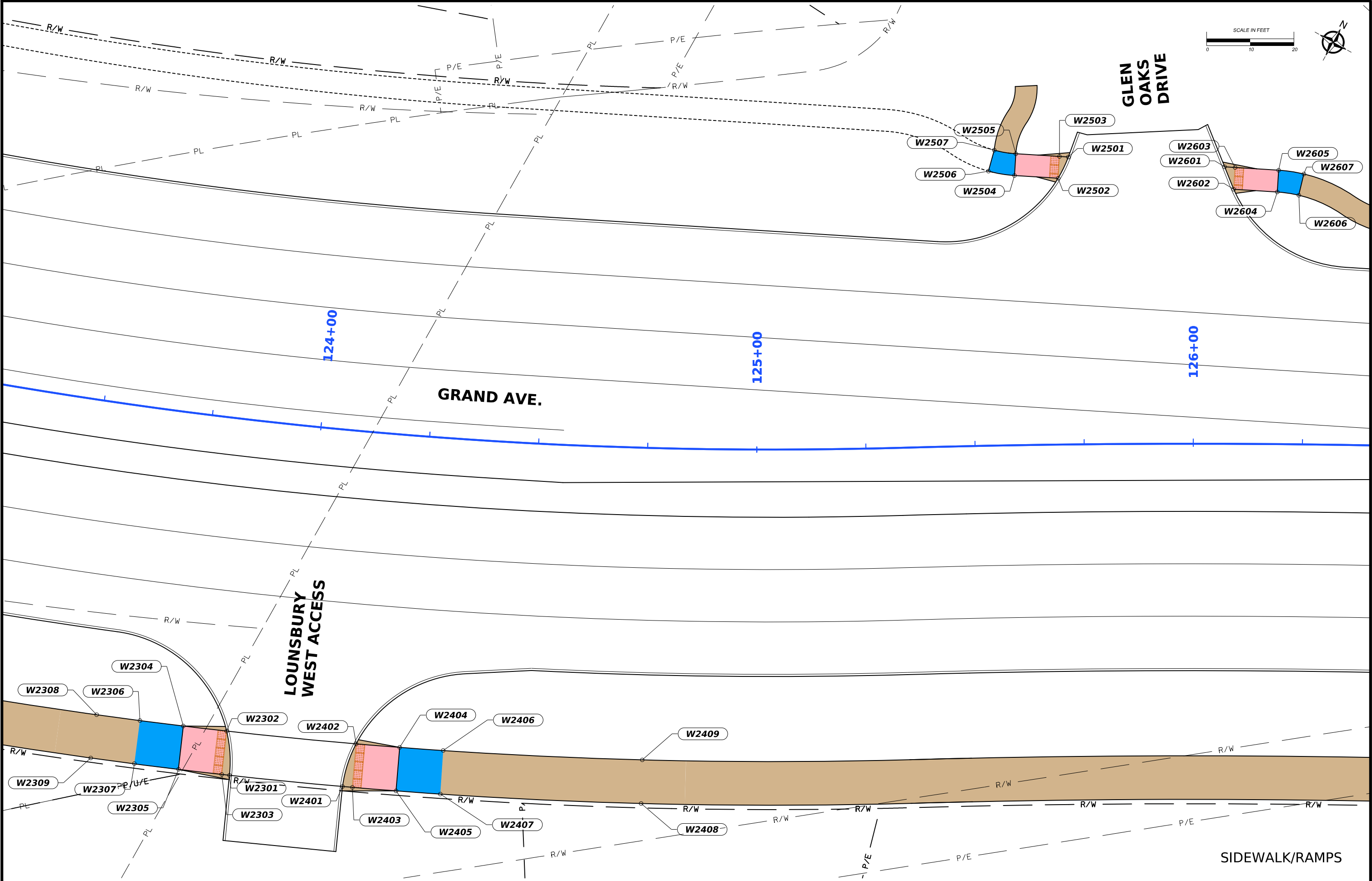
CONTRACTOR SHALL COORDINATE WITH MIDAMERICAN
ENERGY FOR DISCONNECTING AND RECONNECTING
ELECTRICAL SUPPLY.

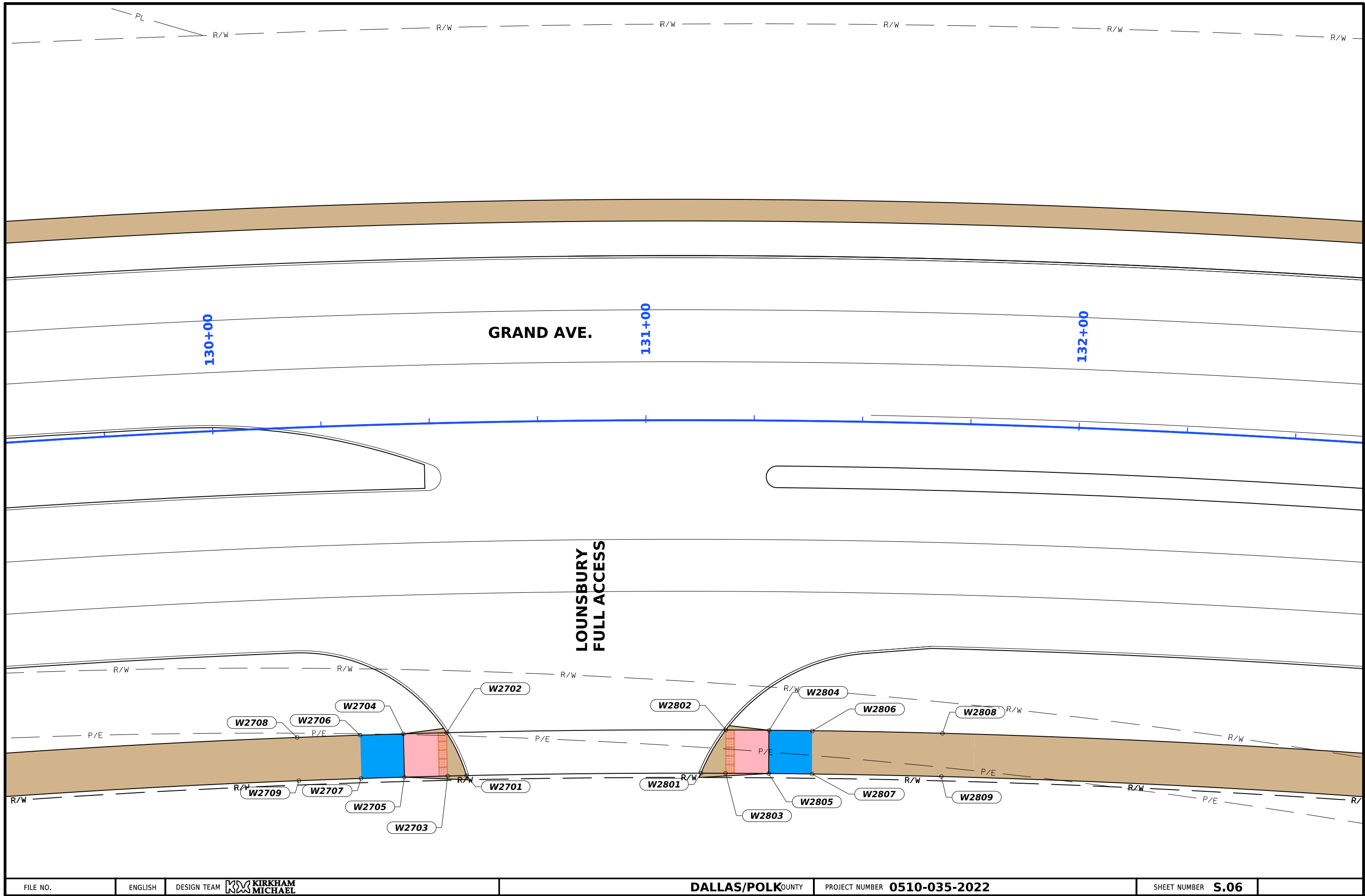
RELOCATE CABINET
STA: 121+67.13
OFF: 89.51 RT
FG: 59.92
TOP FOOTING: 60.25

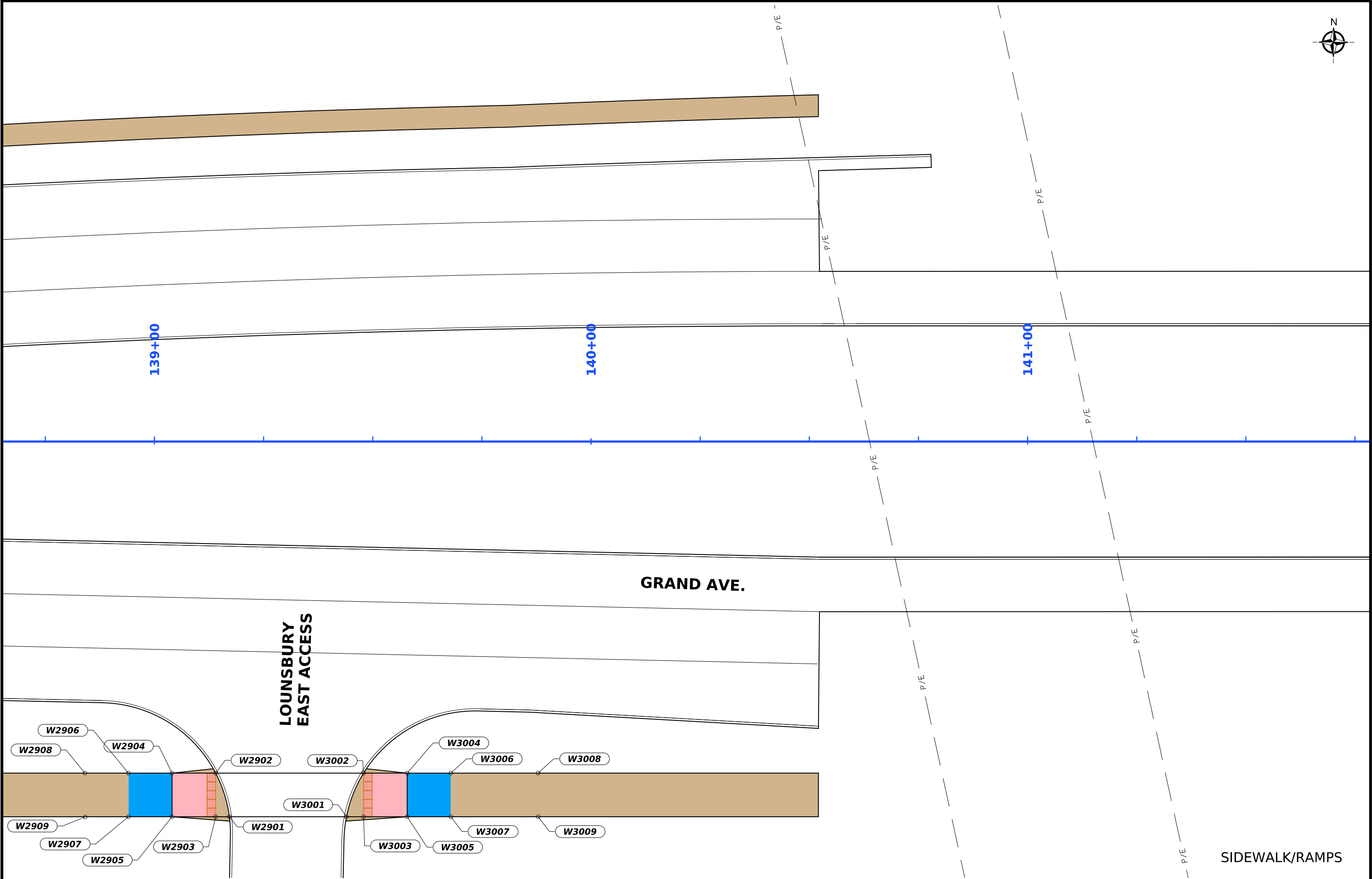
BOLLARD (TYP OF 3)
121+62.12, 93.81' RT
121+60.25, 86.15' RT
121+68.64, 82.73' RT

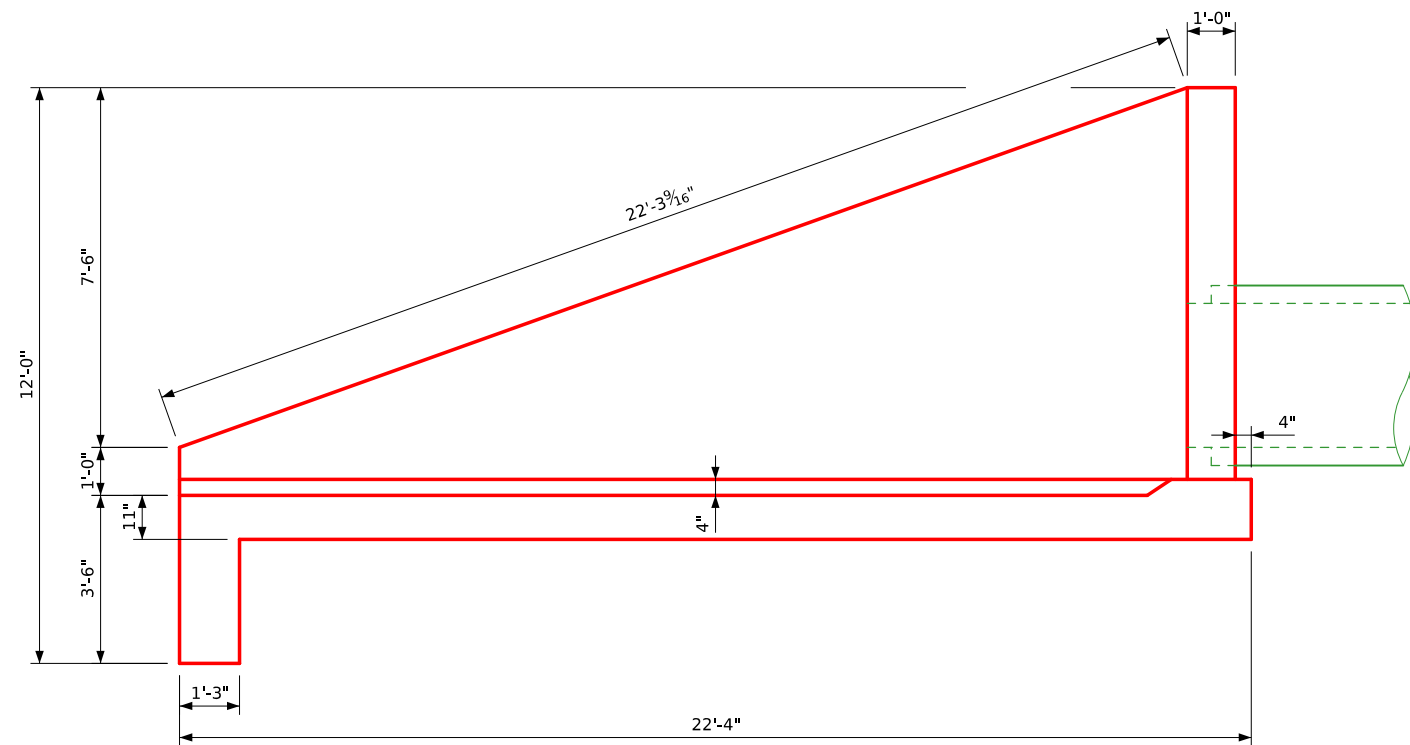


WRA FLOW MONITORING
CABINET RELOCATION

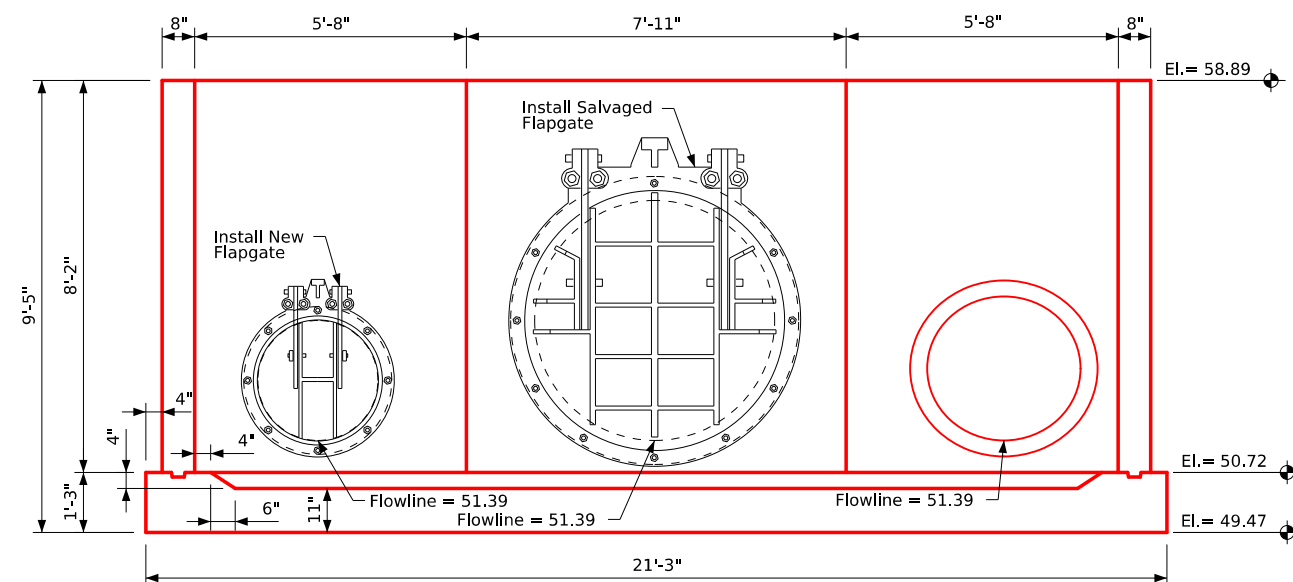




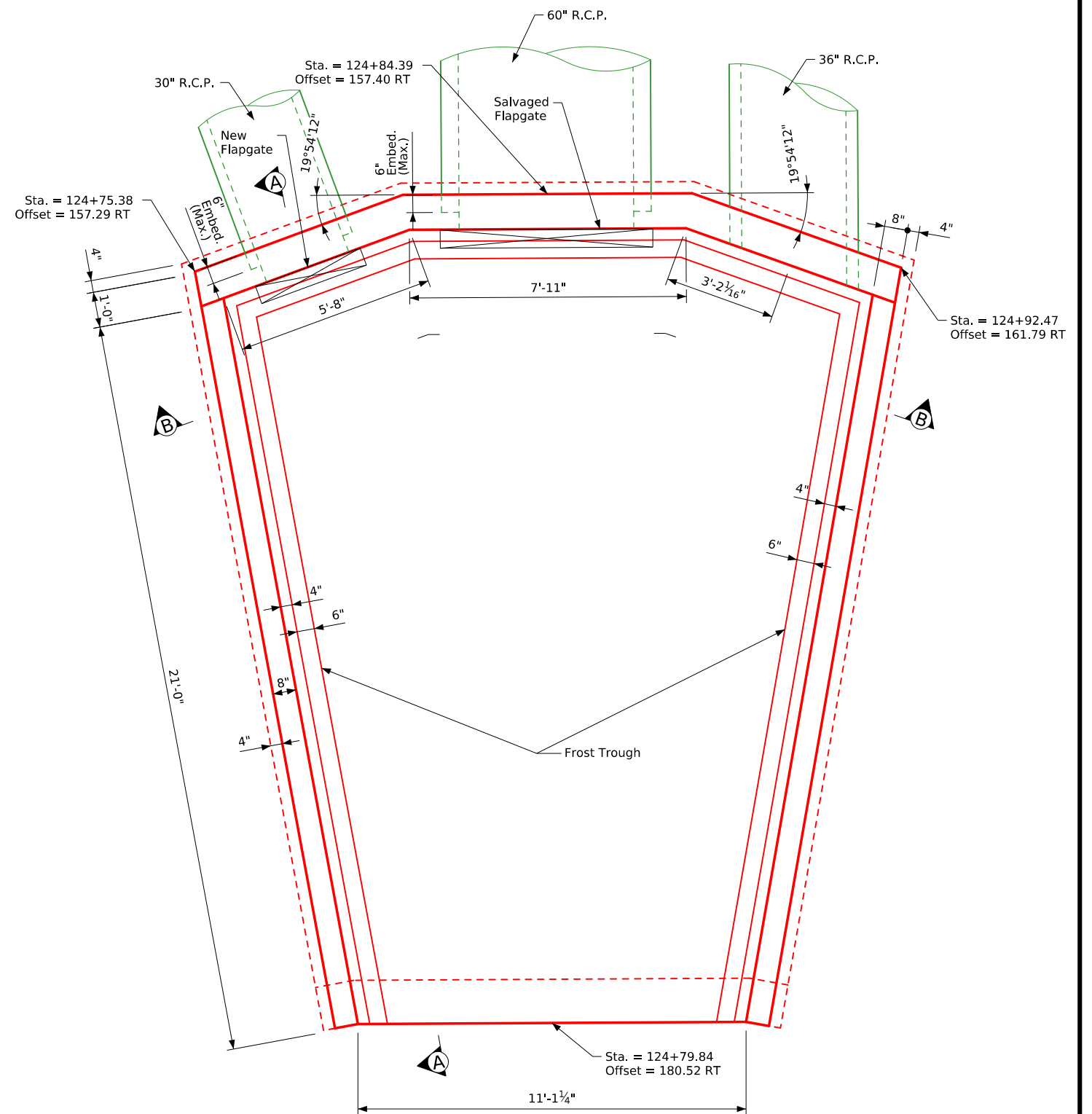




Section A-A



Section B-B

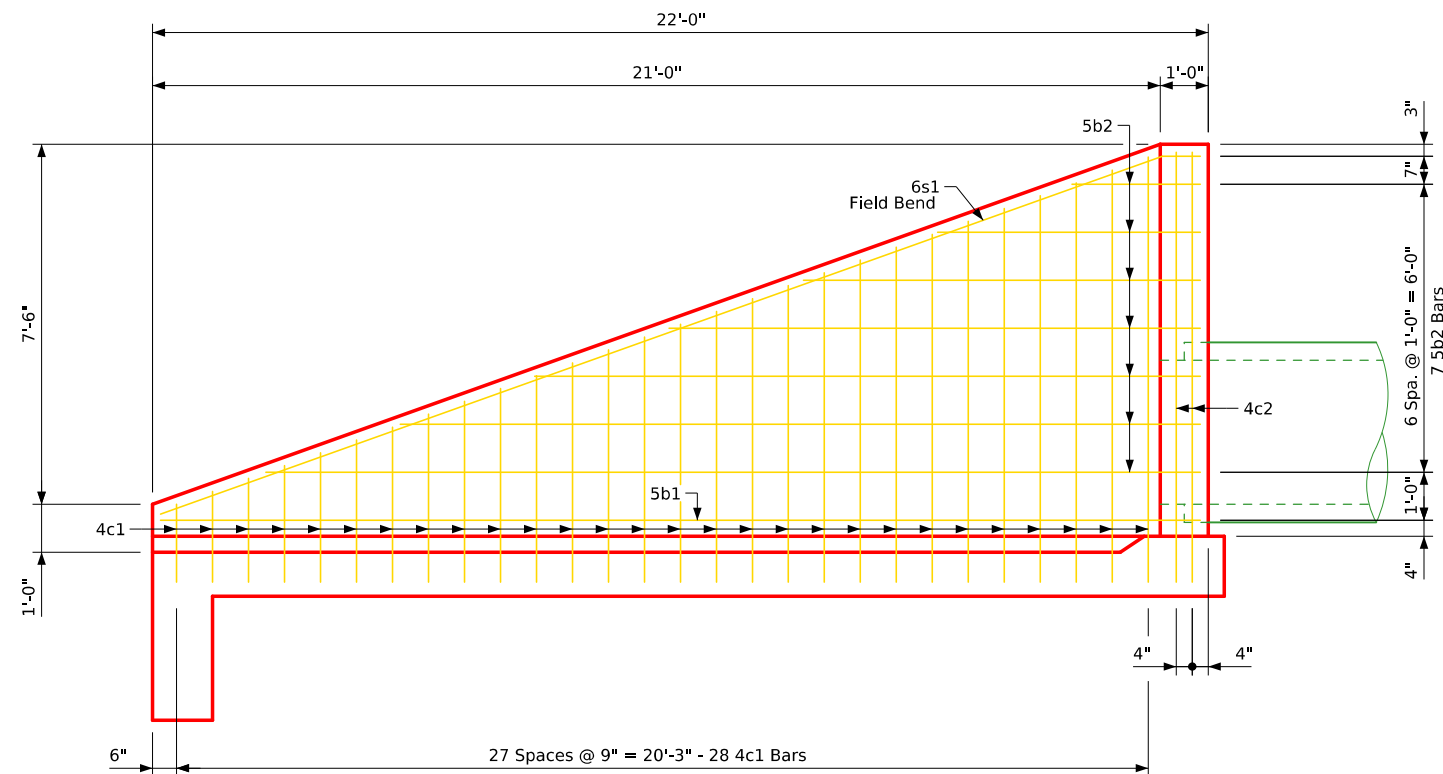


Plan View

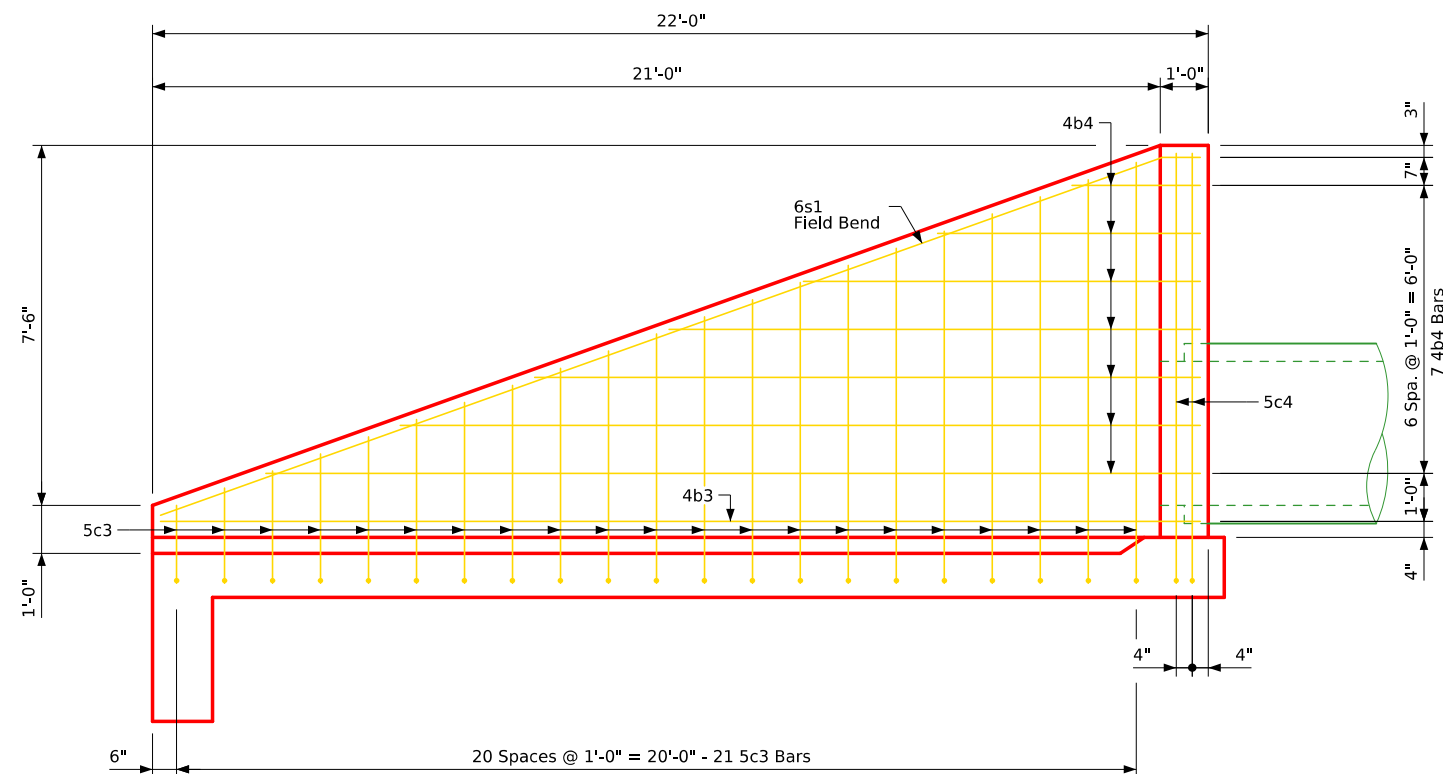
General Notes:

1. All slab and floor reinforcing steel is to be supported at intervals of not more than 3'-0" in either direction.
2. The clear distance from face of concrete to near edge or end of reinforcing bar is to be 2" unless otherwise noted.
3. The reinforcement supplied for this structure shall be Grade 60. The design stresses are based on ASTM A706 Grade 60 reinforcement.
4. Concrete in accordance with AASHTO LRFD Section 5, $f'_c = 4.0$ ksi.
5. Flapgates shall be bolted and grouted to face of new headwall per manufacturers specifications. 30" flapgate shall be new. 60" flapgate shall be salvaged and reused.

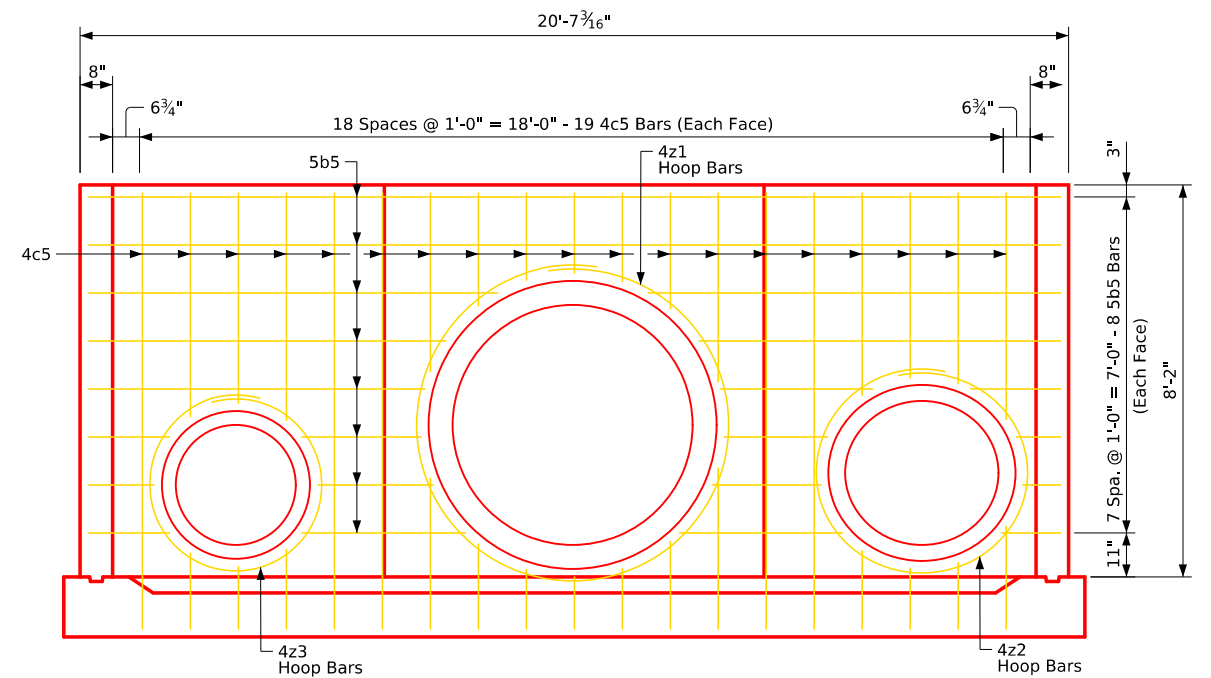
CUSTOM HEADWALL
STRUCTURE S-700



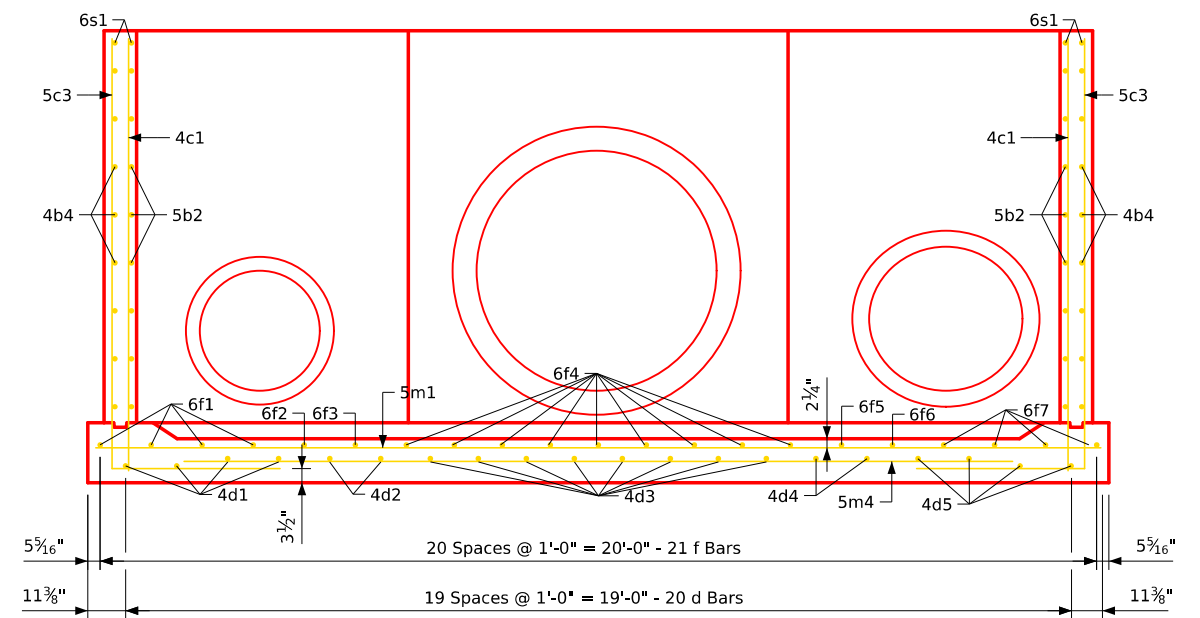
Typical View - Front Face Wingwall Reinforcing



Typical View - Back Face Wingwall Reinforcing

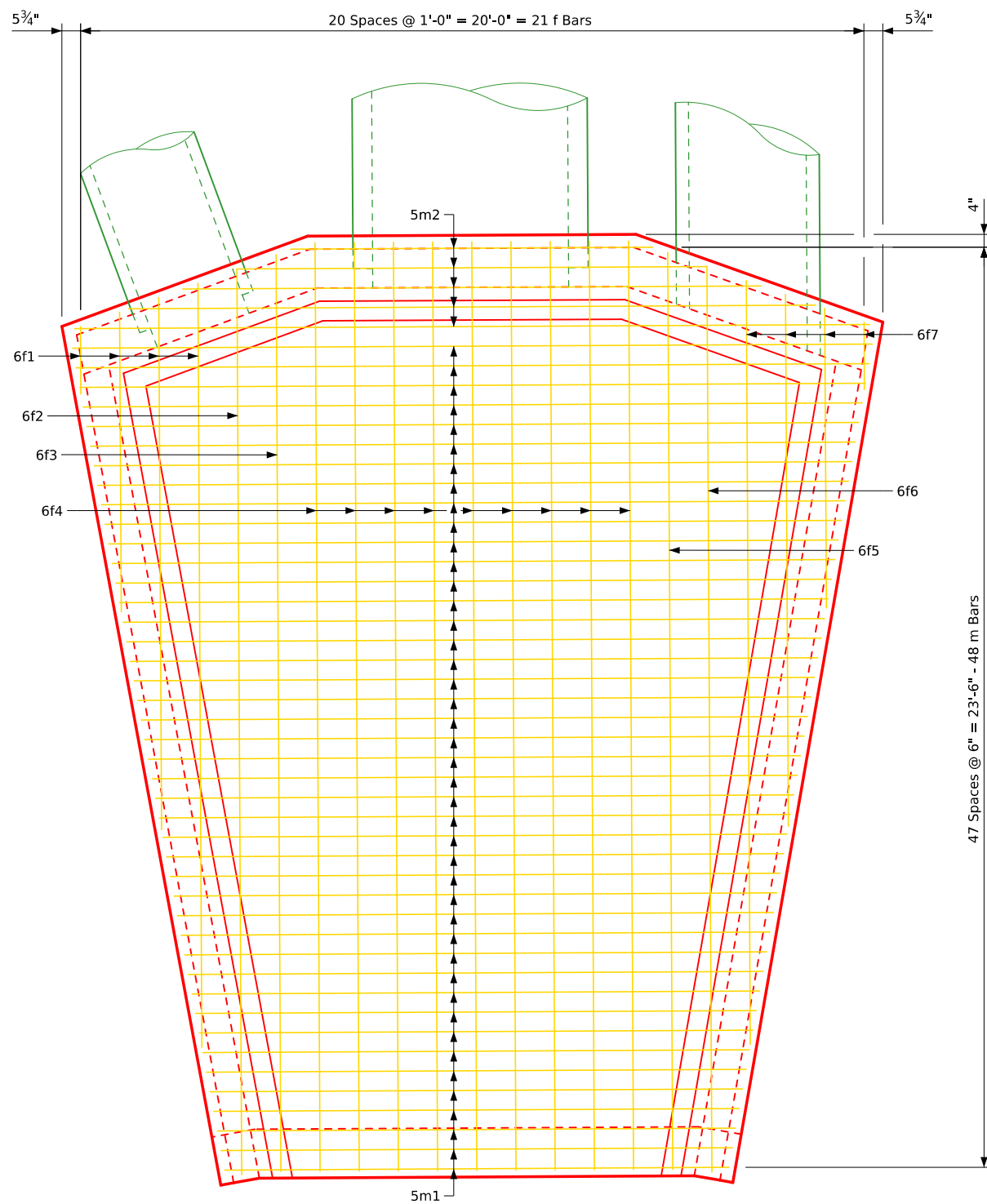


Parapet Wall Reinforcing

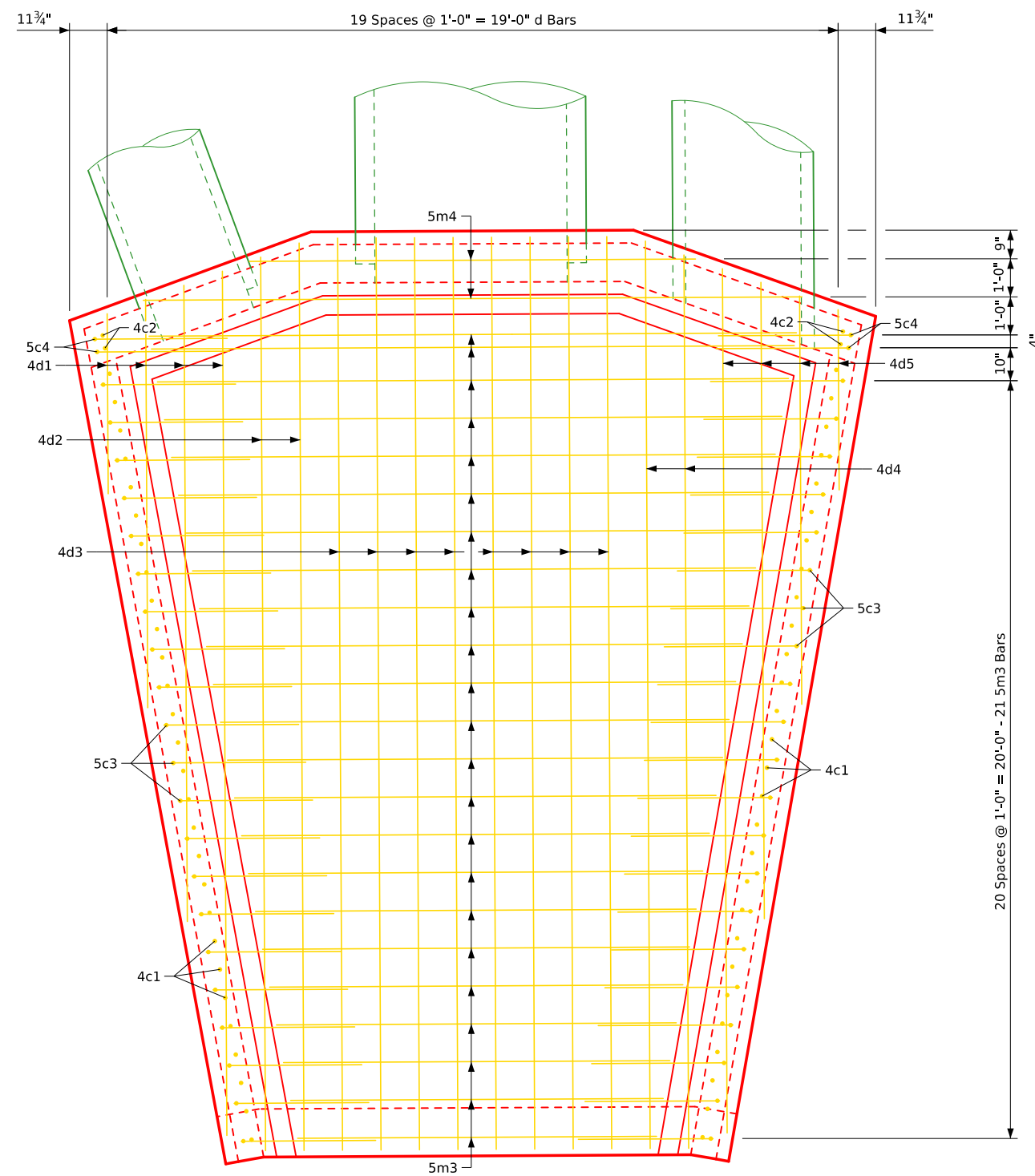


Section B-B - Reinforcing

CUSTOM HEADWALL
STRUCTURE S-700

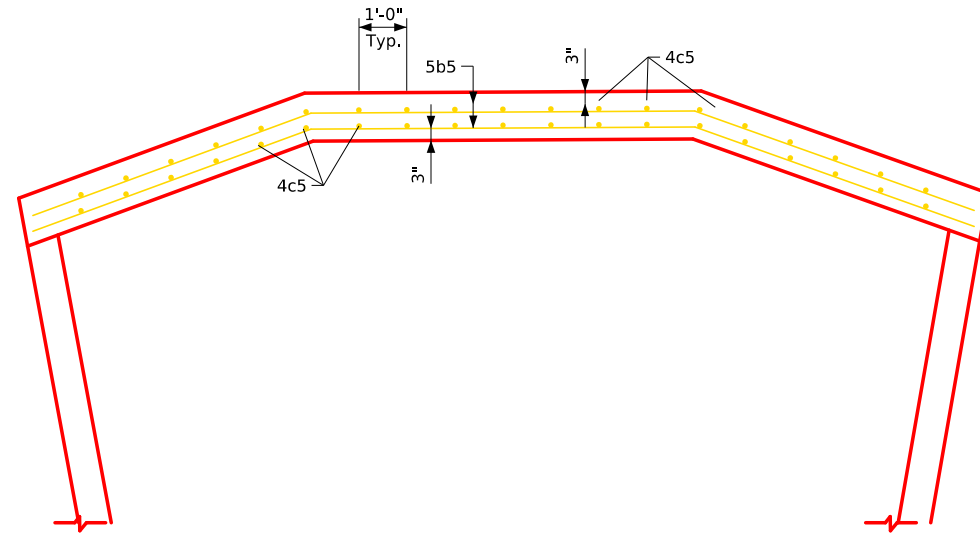


Plan View - Top Apron Reinforcing

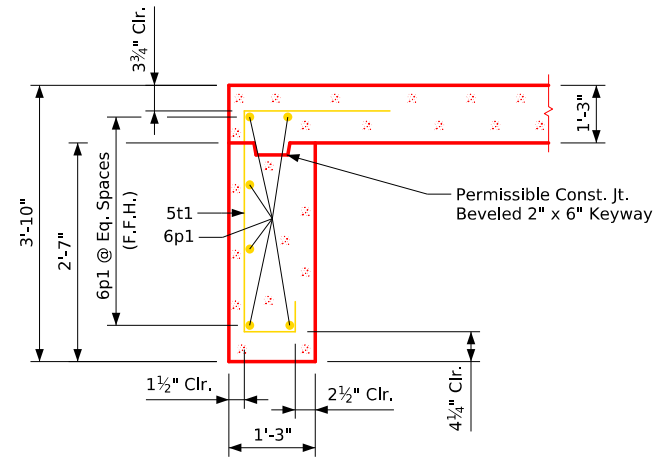


Plan View - Bottom Apron Reinforcing

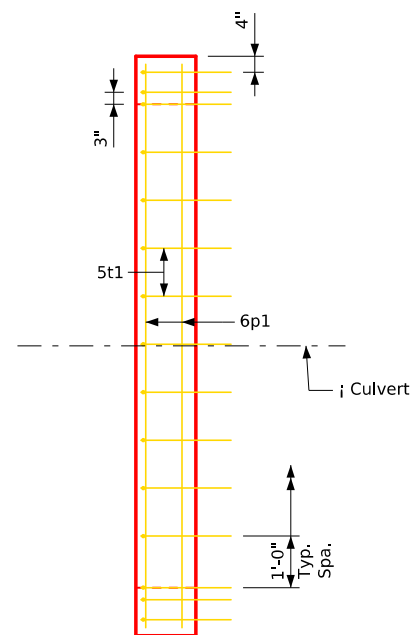
CUSTOM HEADWALL
STRUCTURE S-700



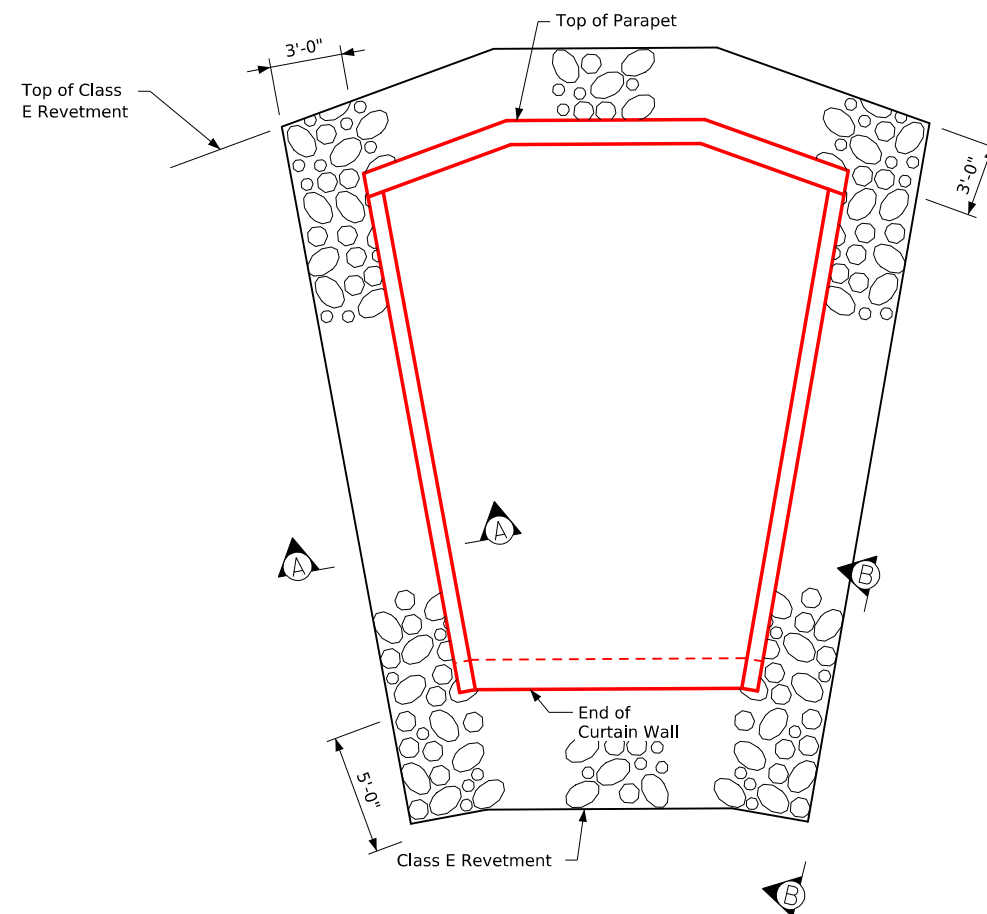
Wall Reinforcing
(Apron is not shown)



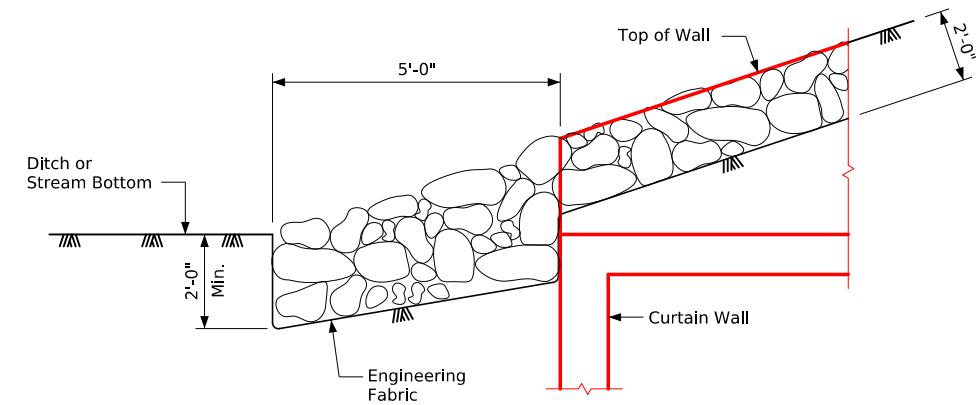
Section thru Curtain Wall



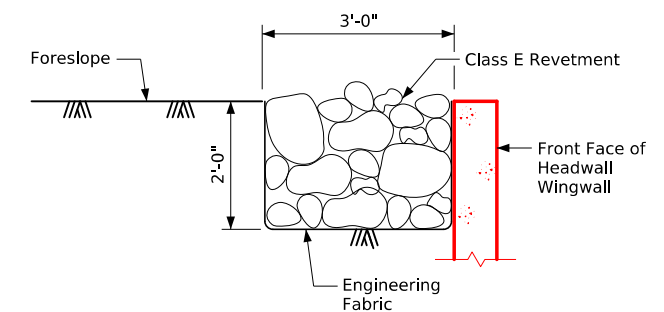
Curtain Wall Detail - Plan View



Revetment Protection Detail - Plan View



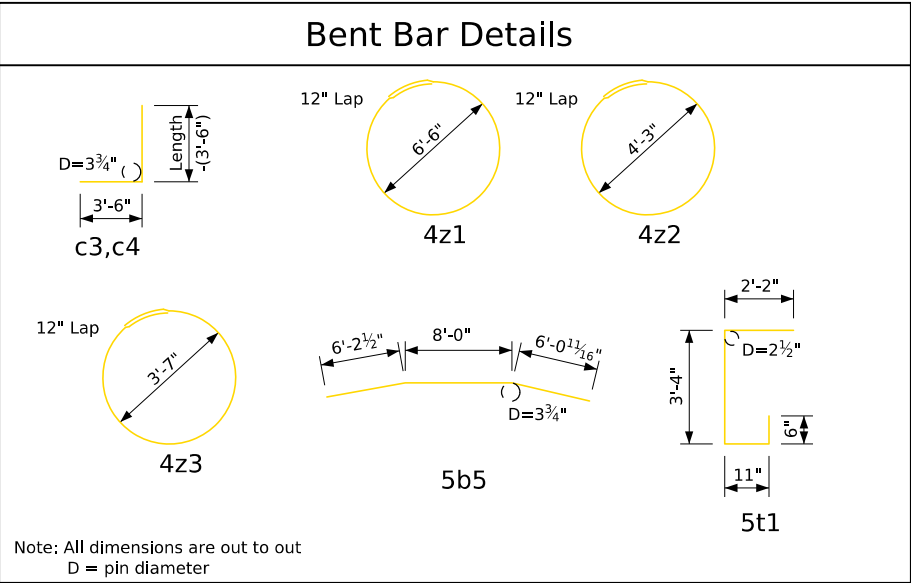
Section B-B



Section A-A

CUSTOM HEADWALL
STRUCTURE S-700

Bill of Reinforcing					
Location	Shape	Bar	No.	Length	Wt.
Wingwall, F.F.H.		5b1	2	21'-8"	45
Wingwall, F.F.H.		5b2	14 Var.	2 Each 2'-8" to 19'-6"	162
Wingwall, B.F.H.		4b3	2	21'-8"	29
Wingwall, B.F.H.		4b4	14 Var.	2 Each 2'-8" to 19'-6"	104
Paraphet, Horiz.		5b5	16	20'-3"	338
Wingwall, F.F.V.		4c1	56 Var.	2 Each 1'-7" to 8'-11"	196
Wingwall, F.F.V.		4c2	4	9'-0"	24
Wingwall, B.F.V.		5c3	42 Var.	2 Each 5'-2" to 12'-3"	381
Wingwall, B.F.V.		5c4	4	12'-6"	52
Paraphet, Vert.		4c5	38	9'-1"	231
Apron, Longit., Bott.		4d1	4 Var.	4'-8" to 22'-6"	36
Apron, Longit., Bott.		4d2	2 Var.	23'-3" to 23'-7"	31
Apron, Longit., Bott.		4d3	8	23'-9"	127
Apron, Longit., Bott.		4d4	2 Var.	23'-3" to 23'-7"	31
Apron, Longit., Bott.		4d5	4 Var.	22'-6" to 4'-8"	36
Apron, Longit., Top		6f1	4 Var.	1'-9" to 19'-6"	64
Apron, Longit., Bott.		6f2	1	23'-2"	35
Apron, Longit., Bott.		6f3	1	23'-5"	35
Apron, Longit., Bott.		6f4	9	23'-9"	321
Apron, Longit., Bott.		6f5	1	23'-5"	35
Apron, Longit., Bott.		6f6	1	23'-2"	35
Apron, Longit., Top		6f7	4 Var.	1'-9" to 19'-6"	64
Apron, Trans., Top		5m1	43 Var.	12'-11" to 20'-5"	747
Apron, Trans., Top		5m2	5 Var.	9'-3" to 20'-4"	77
Apron, Trans., Bott.		5m3	23 Var.	9'-4" to 16'-10"	314
Apron, Trans., Bott.		5m4	2 Var.	11'-7" to 17'-2"	30
Curtain, Horiz.		6p1	6	12'-8"	114
Wing Slope, Both Faces		6s1	4	23'-0"	138
Curtain, Vert.		5t1	15	6'-9"	106
Pipe Hoop		4z1	2	21'-6"	29
Pipe Hoop		4z2	2	14'-5"	19
Pipe Hoop		4z3	2	12'-4"	16
Estimated Quantities One Headwall	Reinf. Steel		4002 LB		
	Concrete	Walls	10.8	31.2 CY	
		Base	20.3		
	Class E Revetment	31.1 Tons			



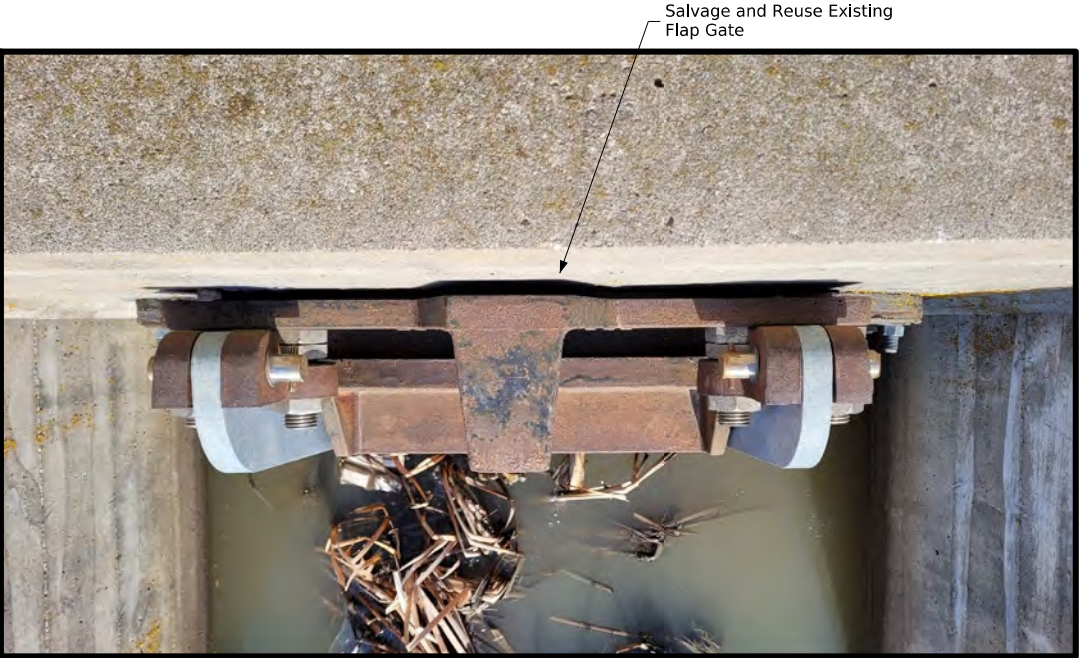
Headwall Notes:

1. All headwall reinforcing steel is to be supported by bar chairs at intervals of not more than 3'-0" in either direction.
2. Clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown. Clearance to the bottom ends of vertical bars shall be 3 inches.
3. Dimensions are in feet and inches unless otherwise noted.



Existing Flap Gate

"For Information Only"



Existing Flap Gate

"For Information Only"

CUSTOM HEADWALL
STRUCTURE S-700

FENCE NOTES

THE LENGTH SHOWN FOR CHAIN LINK FENCE IS MEASURED FROM CENTERLINE TO CENTERLINE OF END POSTS. THE CONTRACTOR SHALL FURNISH ALL MATERIAL, INCLUDING CONCRETE ANCHORS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE FENCE ALONG BOTH CULVERT HEADWALLS IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

THE CHAIN LINK FENCE SHALL BE BLACK VINYL COATED FABRIC, 2" MESH, NO. 6 WIRES, 72" HEIGHT WITH KNUCKLED SELVAGES TOP AND BOTTOM.

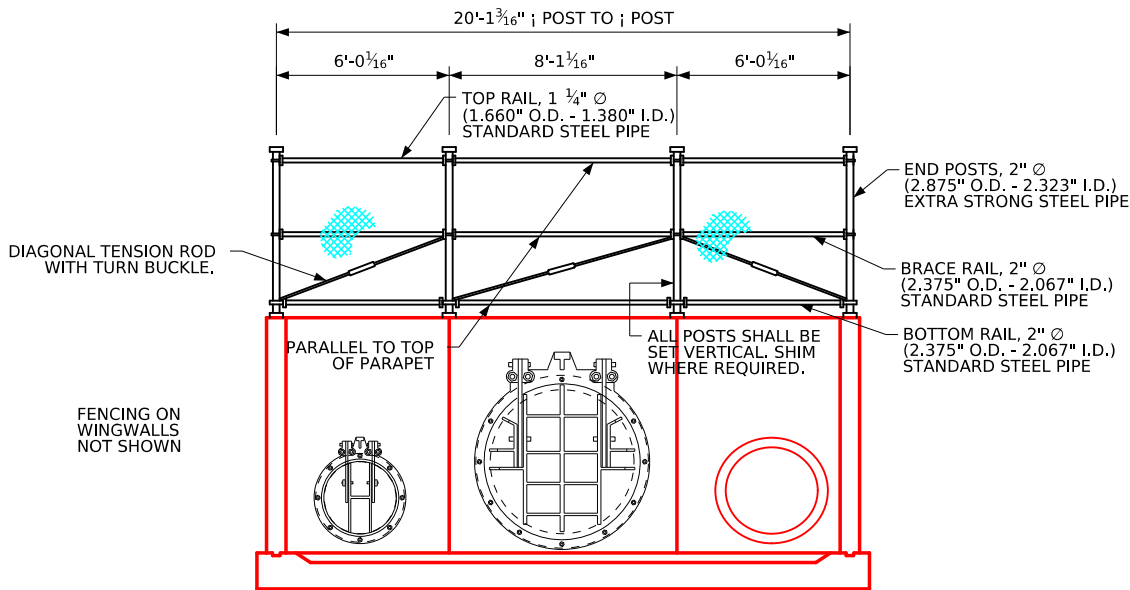
THE STUD CONCRETE ANCHORS SHALL BE STAINLESS STEEL AND HAVE A MINIMUM PULLOUT STRENGTH OF 8000 POUNDS BASED ON 4000 PSI CONCRETE.

THE POSTS, BRACES, RAILS AND SPECIAL FITTINGS SHALL BE IN ACCORDANCE WITH ARTICLES 4154.10 AND 4154.11 OF THE STANDARD CONSTRUCTION SPECIFICATIONS UNLESS NOTED OTHERWISE.

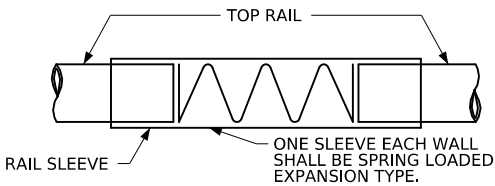
THE FENCE SHALL BE TRUE TO LINE, TAUT, AND COMPLY WITH THE BEST PRACTICE FOR FENCE CONSTRUCTION OF THIS TYPE. ALL ENDS OF WIRES SHALL BE TURNED SO THAT THEY EXTEND AWAY FROM THE EMBANKMENT SIDE OF THE FENCE. ALL POSTS SHALL BE INSTALLED VERTICALLY.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER. FENCE MATERIALS SHALL NOT BE ORDERED UNTIL APPROVED SHOP DRAWINGS ARE RETURNED TO THE CONTRACTOR.

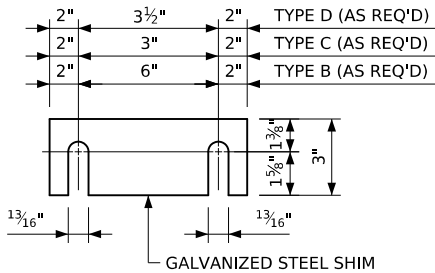
POSTS AND BASE PLATES SHALL BE HOT-DIP GALVANIZED AFTER THE POSTS AND BASE PLATES AND WELDED.



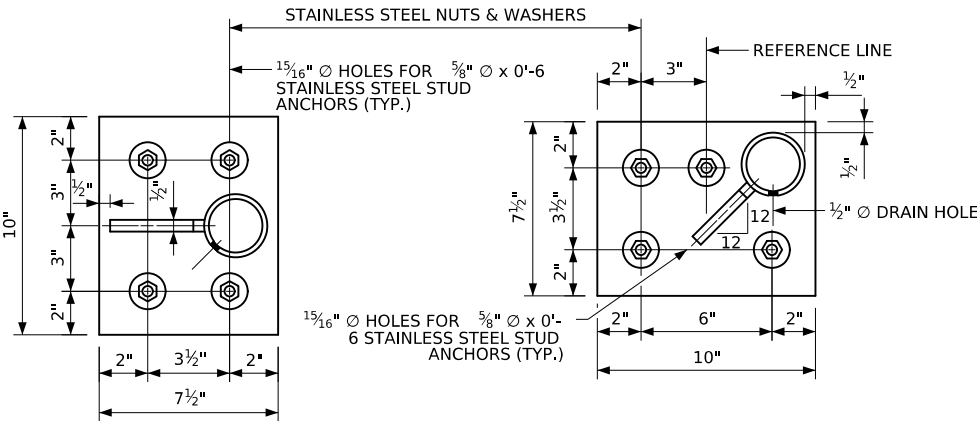
ELEVATION OF FENCE ON PARAPET



TYPICAL DETAIL
RAIL SLEEVE

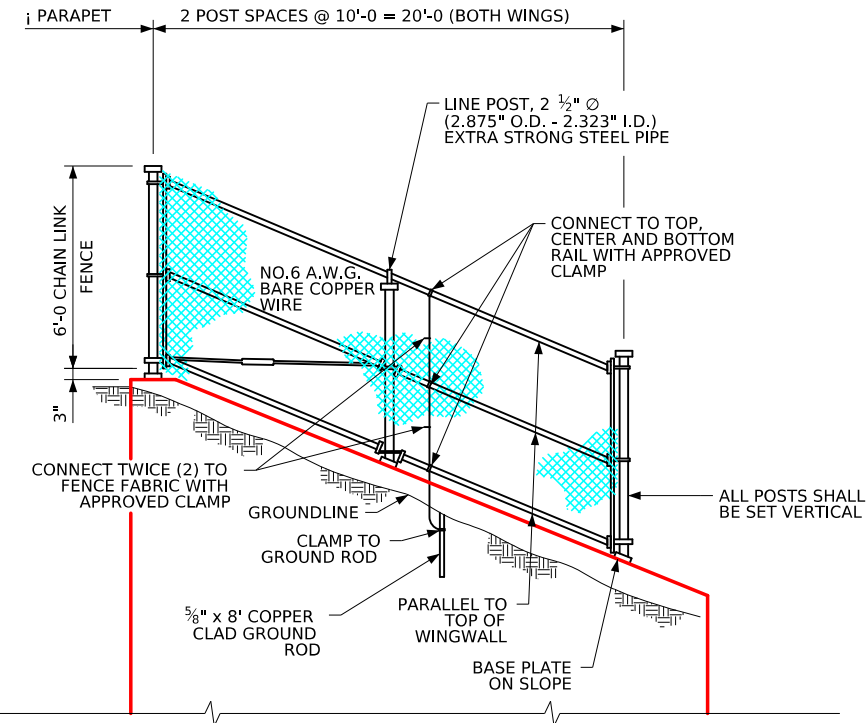


SHIM DETAIL



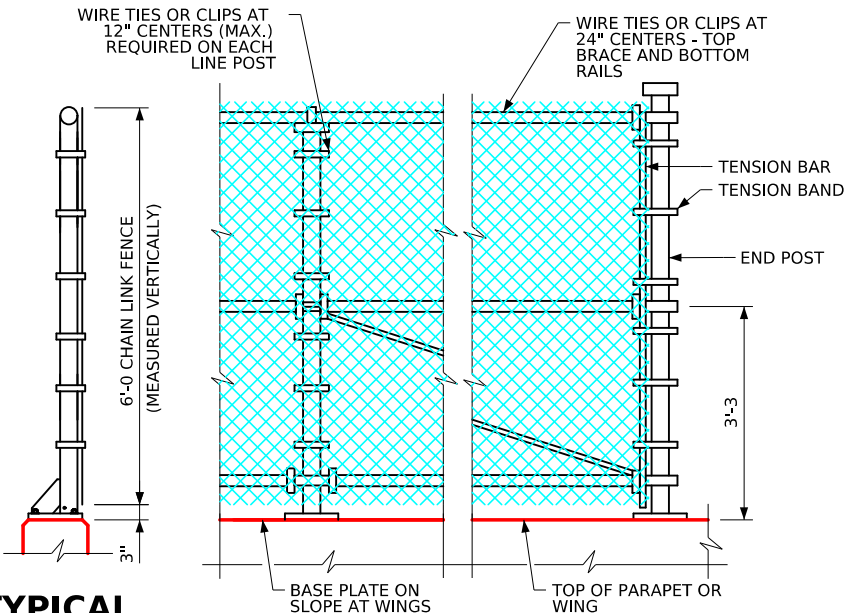
TYPICAL BASE PLATE

END POST BASE PLATE



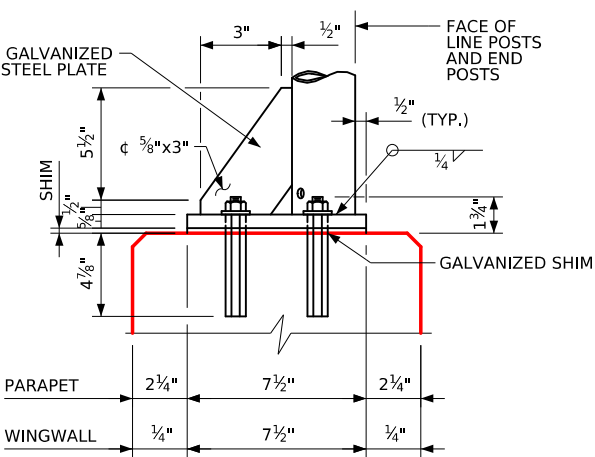
ELEVATION OF FENCE ON EXTERIOR WINGWALL

(TYPICAL BOTH WINGWALLS)
ONE GROUND ROD INSTALLATION PER HEADWALL



TYPICAL
SECTION

FENCE DETAILS



BASE PLATE DETAILS

(SHOWN FOR TOP OF PARAPET; SIMILAR FOR WINGWALL EXCEPT ON SLOPE WITH POST VERTICAL.)
POST AND BASE PLATES SHALL BE GALVANIZED AFTER THE POSTS AND BASE PLATES ARE WELDED.

FENCE DETAILS