

CITY OF TAWAS CITY
MICHIGAN

FIRST ST OVER TAWAS RIVER
BRIDGE REHABILITATION PROJECT

GENERAL NOTES:

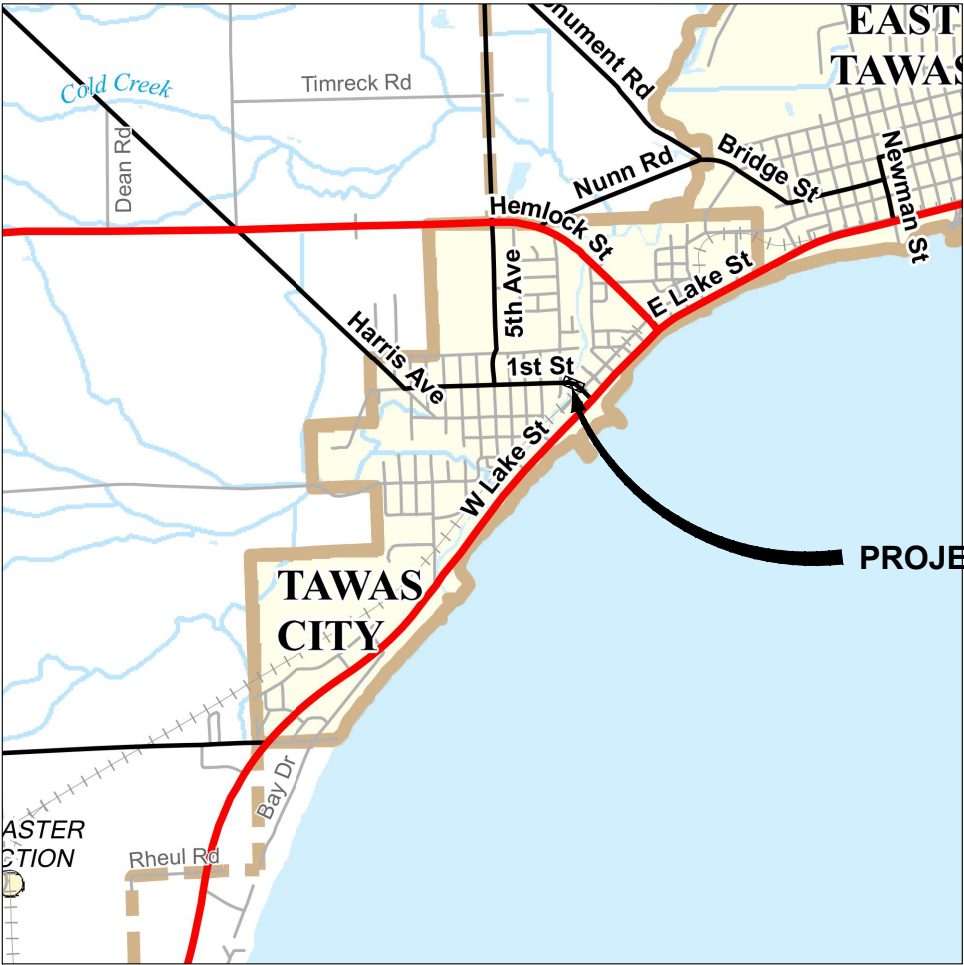
EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR CONSTRUCTION 2012 EDITION.

WORK SHALL COMPLY WITH SECTION 504 OF THE REHABILITATION ACT OF 1973 AND THE AMERICANS WITH DISABILITIES ACT OF 1990.

DESIGN OF STRUCTURAL MEMBERS BASED ON

STRUCTURAL STEEL: AASHTO M270, GRADE 50	$f_y = 50,000$ psi
CONCRETE: GRADE S2	$f_c = 3,000$ psi
TIMBER: SYP No.1	$f_b = 1,250$ psi

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53 1974 AS AMENDED, THE CONTRACTOR SHALL CONTACT MISS DIG AT 800-482-7171 or on-line at <https://www.missdig.org/> A MINIMUM OF THREE (3) WORKING DAYS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO EXCAVATION ON-SITE. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT PARTICIPATE IN THE "MISS DIG" SYSTEM. ALSO, NOTIFY THE CITY OF TAWAS CITY AT 1 - (989) 362-2521 THREE WORKING DAYS PRIOR AS ABOVE.



SEC 30, T22N, R8E
TAWAS CITY
IOSCO COUNTY, MICHIGAN

SHEET INDEX

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6	FIRST ST DECK PLAN
7	FIRST ST POST TENSIONING SYSTEM
8	FIRST ST CAP REMOVE AND REPLACE DEADMEN PLAN



Know what's below.
Call before you dig.

PROJECT LOCATION

CONTRACT FOR: BRIDGE REHABILITATION AND RELATED APPROACH WORK

CITY OF TAWAS CITY

GUS OLIVER - DIRECTOR OF PUBLIC WORKS

DATE

Link
ENGINEERING
SERVICES
7450 SUPPLY ROAD
TRAVERSE CITY, MI 49696
PHONE: (231) 499-9479

PREPARED UNDER THE SUPERVISION OF:

BRADLEY A. LINK, P.E.
REGISTERED PROFESSIONAL ENGINEER NO. 40060



DATE

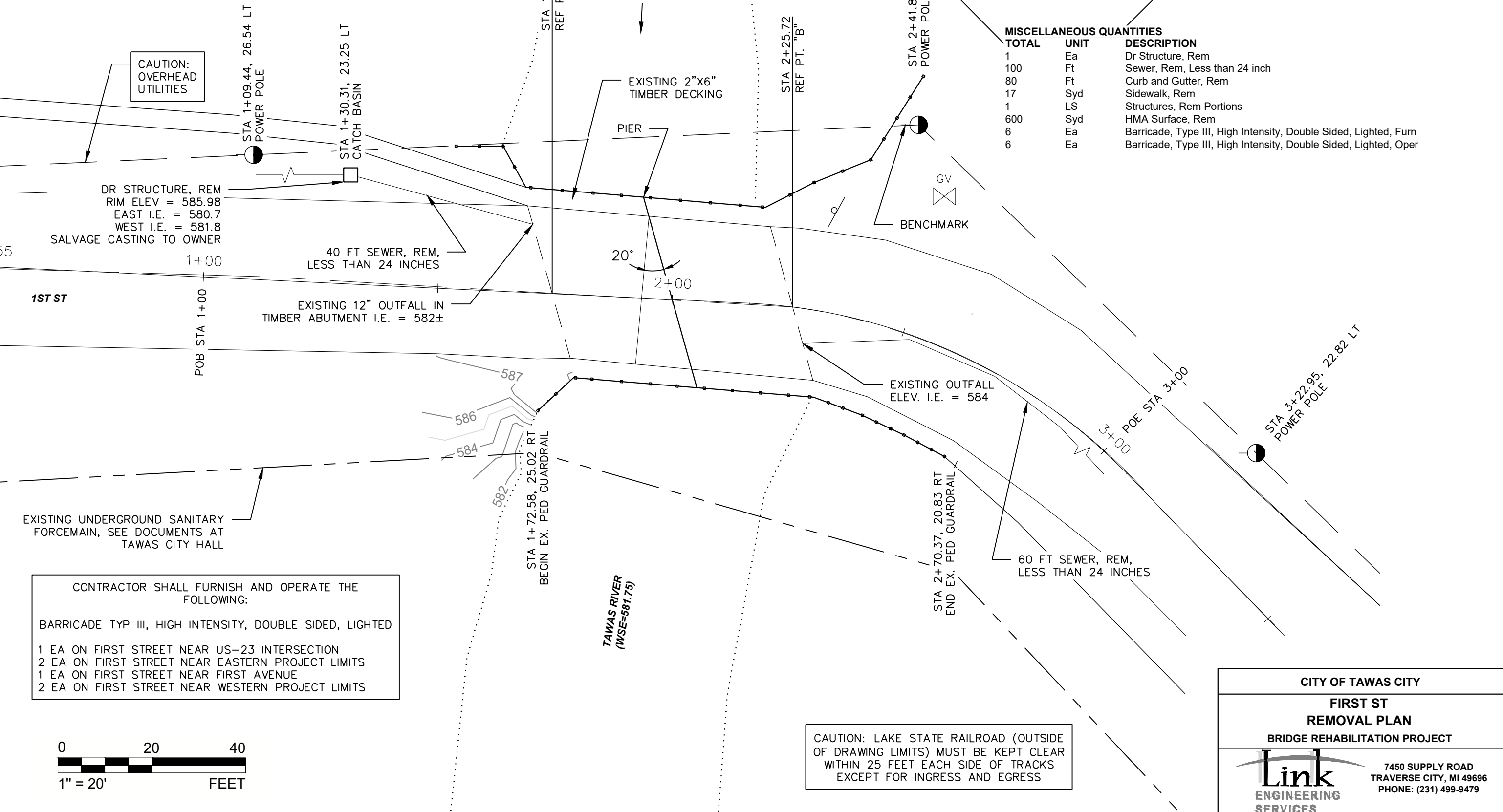
BRIDGE REHABILITATION PROJECT

REMOVE FULL WIDTH HMA ON BRIDGE DECK AND APPROACHES AS DIRECTED BY THE ENGINEER.

REMOVE CURB AND GUTTER AND SIDEWALK AS DIRECTED BY THE ENGINEER.

PAY ITEM "STRUCTURES, REM PORTIONS" LS INCLUDES REMOVAL OF:

- PEDESTRIAN GUARD RAILING ON BRIDGE WINGWALLS
- BRIDGE RAILINGS
- SIDEWALK PLANKS, STRINGERS AND BRACING
- SPREADER BEAM BOLTS
- MISCELLANEOUS ITEMS AS NEEDED TO COMPLETE THE WORK

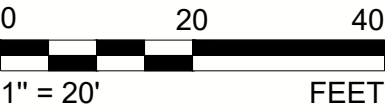


MISCELLANEOUS QUANTITIES		
TOTAL	UNIT	DESCRIPTION
1	Ea	Dr Structure, Rem
100	Ft	Sewer, Rem, Less than 24 inch
80	Ft	Curb and Gutter, Rem
17	Syd	Sidewalk, Rem
1	LS	Structures, Rem Portions
600	Syd	HMA Surface, Rem
6	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn
6	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper

CONTRACTOR SHALL FURNISH AND OPERATE THE FOLLOWING:

BARRICADE TYP III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED

1 EA ON FIRST STREET NEAR US-23 INTERSECTION
2 EA ON FIRST STREET NEAR EASTERN PROJECT LIMITS
1 EA ON FIRST STREET NEAR FIRST AVENUE
2 EA ON FIRST STREET NEAR WESTERN PROJECT LIMITS



CAUTION: LAKE STATE RAILROAD (OUTSIDE OF DRAWING LIMITS) MUST BE KEPT CLEAR WITHIN 25 FEET EACH SIDE OF TRACKS EXCEPT FOR INGRESS AND EGRESS

CITY OF TAWAS CITY

FIRST ST
REMOVAL PLAN
BRIDGE REHABILITATION PROJECT

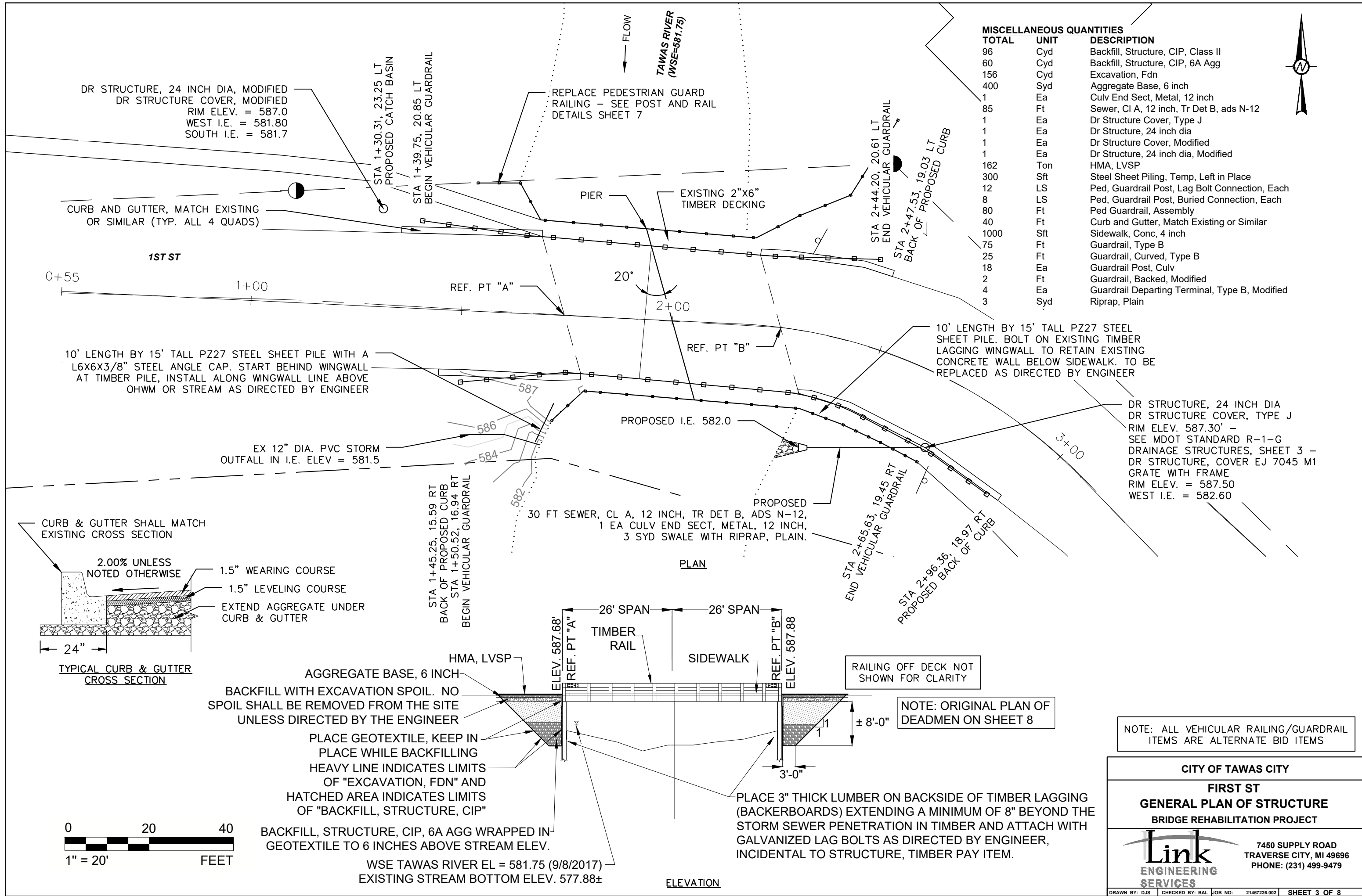
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DRAWN BY: DJS

CHECKED BY: BAL

JOB NO: 21467226.002

SHEET 2 OF 8



MISCELLANEOUS QUANTITIES		
TOTAL	UNIT	DESCRIPTION
96	Cyd	Backfill, Structure, CIP, Class II
60	Cyd	Backfill, Structure, CIP, 6A Agg
156	Cyd	Excavation, Fdn
400	Syd	Aggregate Base, 6 inch
1	Ea	Culv End Sect, Metal, 12 inch
85	Ft	Sewer, Cl A, 12 inch, Tr Det B, ads N-12
1	Ea	Dr Structure Cover, Type J
1	Ea	Dr Structure, 24 inch dia
1	Ea	Dr Structure Cover, Modified
1	Ea	Dr Structure, 24 inch dia, Modified
162	Ton	HMA, LVSP
300	Sft	Steel Sheet Piling, Temp, Left in Place
12	LS	Ped, Guardrail Post, Lag Bolt Connection, Each
8	LS	Ped, Guardrail Post, Buried Connection, Each
80	Ft	Ped Guardrail, Assembly
40	Ft	Curb and Gutter, Match Existing or Similar
1000	Sft	Sidewalk, Conc, 4 inch
75	Ft	Guardrail, Type B
25	Ft	Guardrail, Curved, Type B
18	Ea	Guardrail Post, Culv
2	Ft	Guardrail, Backed, Modified
4	Ea	Guardrail Departing Terminal, Type B, Modified
3	Syd	Riprap, Plain

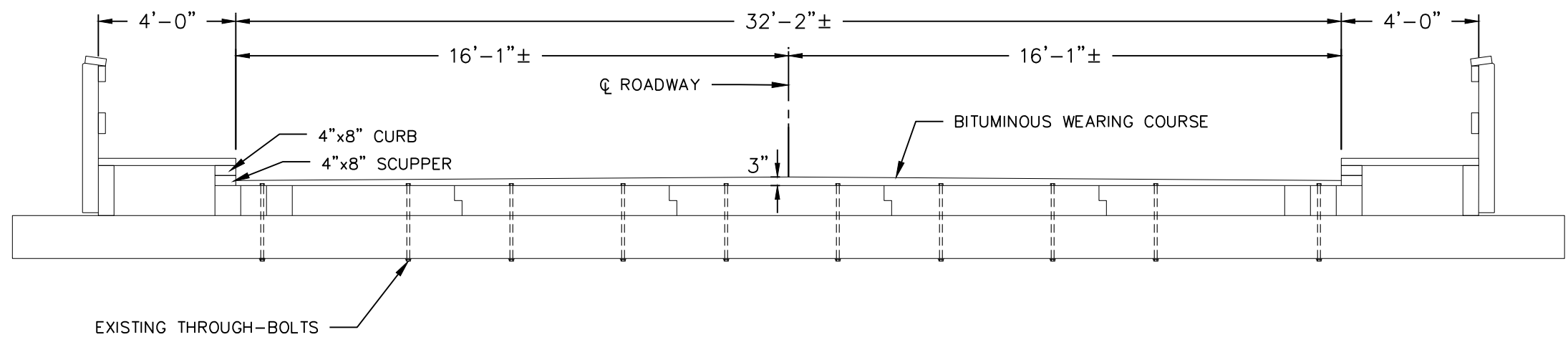
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FIRST ST
GENERAL PLAN OF STRUCTURE
BRIDGE REHABILITATION PROJECT

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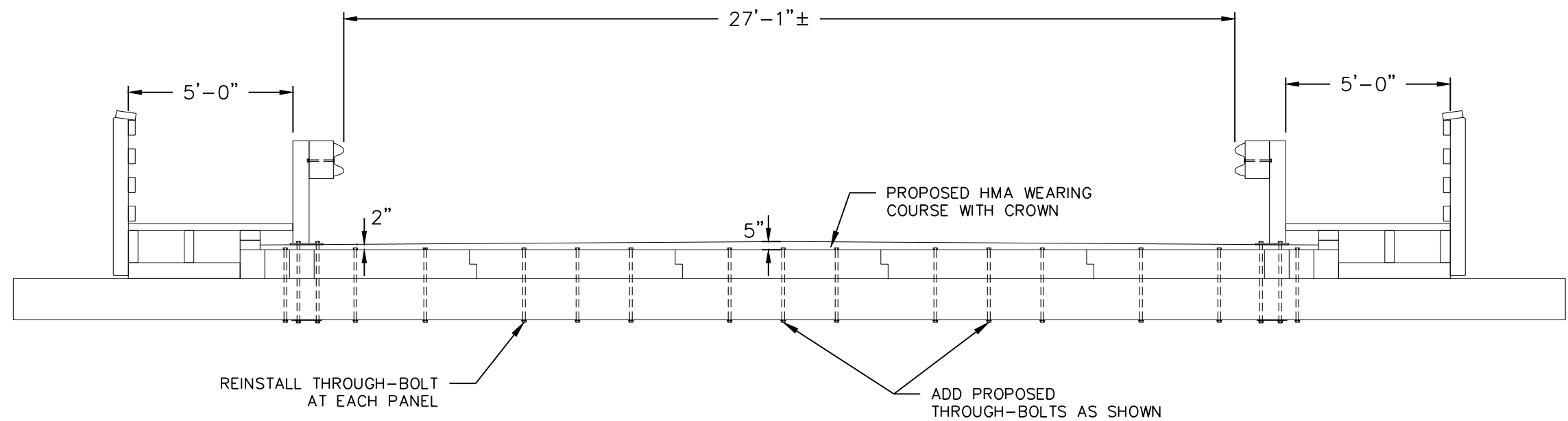
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EXISTING FIRST ST. SECTION THRU DECK AT SPREADER BEAM

TIMBER, POST TENSIONING ITEMS INCLUDE:
THROUGH-BOLT REMOVAL, REINSTALLATION



PROPOSED FIRST ST. SECTION THRU DECK AT SPREADER BEAM

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FIRST ST CROSS SECTIONS BRIDGE REHABILITATION PROJECT	
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JOB NO: 21467226.002	SHEET 4 OF 8

3" X 8" CAP RAIL. S4S, ATTACH TO POST WITH (4) 5/16" X 6" STAR DRIVE CONSTRUCTION LAG SCREWS. ATTACH TO TOP RAIL WITH 5/16" X 5" STAR DRIVE CONSTRUCTION LAG SCREWS @ 18" CENTERS

6" X 6" X 4'-5 1/2" SIDEWALK RAILPOST. S4S.

ATTACH RAILPOST TO STRINGER WITH (2) 5/8" X 12" MACHINE BOLTS WITH (2) 3" X 3" X 1/4" PLATE WASHERS. SHOP DRILL POST.

4" X 12" SIDEWALK STRINGER, S1E (11 1/2") SHOP DRILLED. STRINGERS BEAR ON 6"X6"X4' FILLER BLOCK NOT SHOWN

3" X 8" X 5'-0" SIDEWALK PLANK S4S, ATTACH TO EA. STRINGER WITH (2) 5/16" X 5" STAR DR. CONST LAG SCREWS

EXISTING TIMBER CURB

EXISTING TIMBER SCUPPER BLOCK

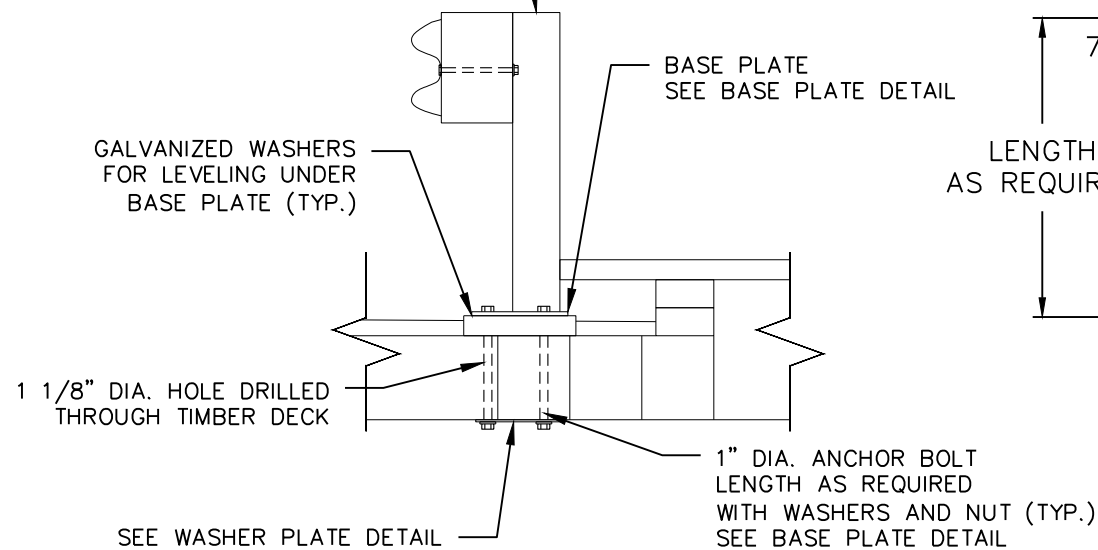
EXISTING NAIL LAM. FLOORING

SECTION THRU SIDEWALK

STRUCTURE, TIMBER ITEM INCLUDES: ITEMS SHOWN IN SECTION THRU SIDEWALK AND TIMBER BLOCK UNDER GUARDRAIL POSTS

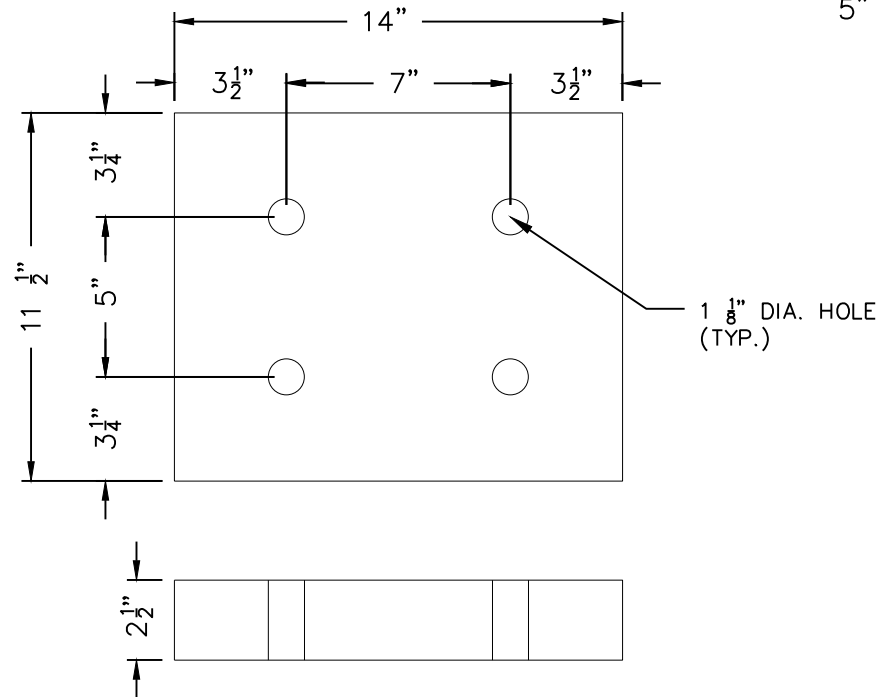
ALL TIMBER SHALL BE SOUTHERN YELLOW PINE, No.1 S4S NOMINAL, GROUND CONTACT GRADE TREATMENT S.15 MICRONIZED COPPER AZOLE (MCA) PER AWPA 2017 BOOK OF STANDARDS AND SOUTHERN PINE INSPECTION BUREAU (SYIP)

W6 X 8.5 OR W6 X 9 STEEL POST POST MAY BE FIELD CUT TO PROPER HEIGHT. FOR REPAIR OF GALVANIZED SURFACES, SEE STANDARD SPECIFICATIONS

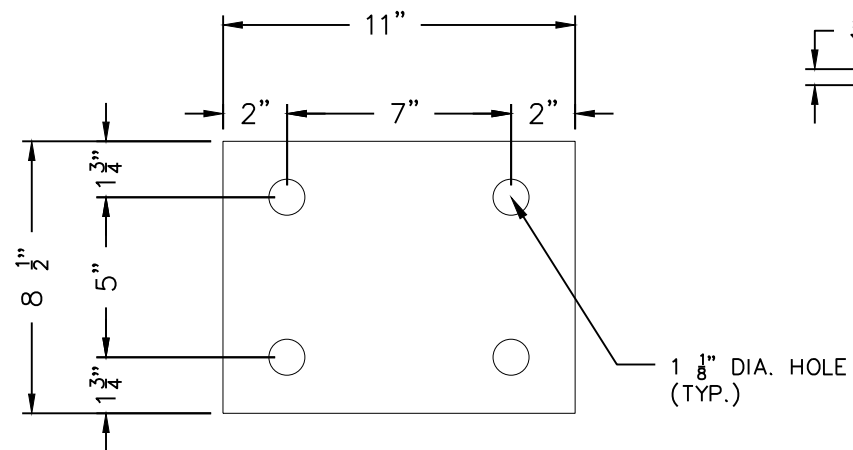


VEHICULAR RAILING DETAIL

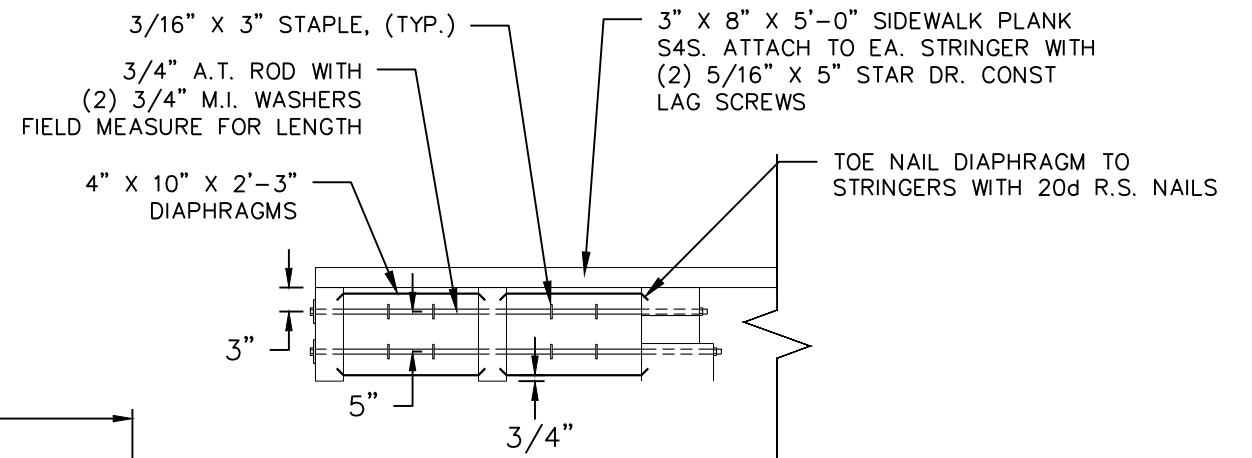
SEE GUARDRAIL OVER BOX OR SLAB CULVERTS SPECIAL DETAIL R-73-F



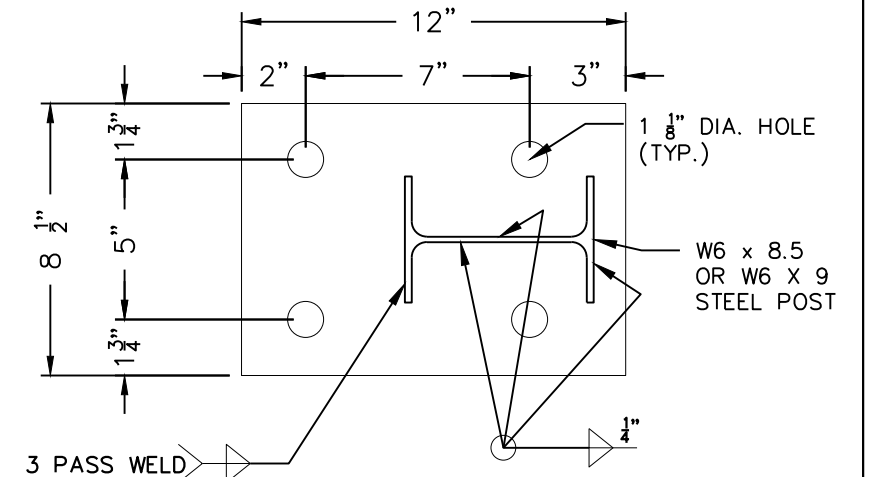
POST TIMBER BLOCK DETAIL



WASHER PLATE DETAIL



SECTION THRU SIDEWALK



BASE PLATE DETAIL

NOTE: ALL VEHICULAR RAILING/GUARDRAIL ITEMS ARE ALTERNATE BID ITEMS

CITY OF TAWAS CITY

FIRST ST
SECTION DETAILS

BRIDGE REHABILITATION PROJECT

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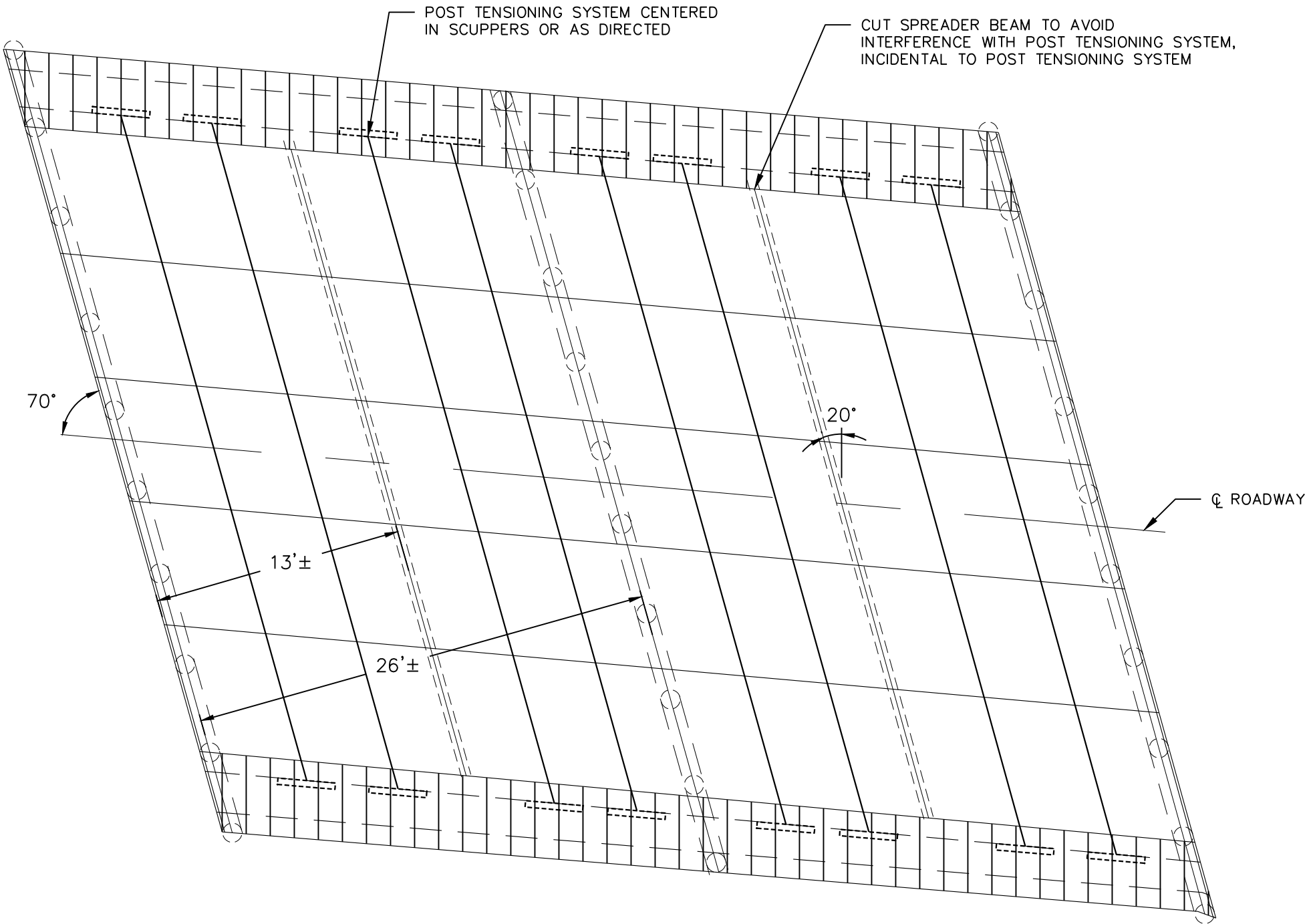
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SPREADER BEAM THROUGH-BOLTS

1. ALL SPREADER BEAM THROUGH-BOLTS SHALL BE REMOVED EXCEPT THE CENTER BOLT.
2. ALL THROUGH BOLTS SHALL BE RE-INSTALLED OR REPLACED IN ALL PROPOSED LOCATIONS ON DRAWINGS.
3. HOLES SHALL BE DRILLED USING THE ORIGINAL BOLT PATTERN ON THE SPREADER BEAM. DRILL HOLES FOR PROPOSED ADDITIONAL BOLTS.
4. REPLACE SPREAD BEAM NUTS ON THROUGH-BOLTS, RE-USE OR REPLACE REMAINING ASSEMBLY.
5. THE CONTRACTOR SHALL TIGHTEN ALL NUTS ON THE LAST DAY OF CONSTRUCTION IN THE PRESENCE OF THE OWNER TO ENSURE ALL NUTS ARE PROPERLY TIGHTENED.
6. SET THREADS ON ALL SPREADER BEAM BOLTS AT NUT WITH CENTER PUNCH AFTER TIGHTENING.
7. PAID FOR AS "STRUCTURE, TIMBER" LS.

MISCELLANEOUS QUANTITIES		
TOTAL	UNIT	DESCRIPTION
1	LS	Post Tensioning, Modified
1	LS	Structure, Timber



PLAN VIEW

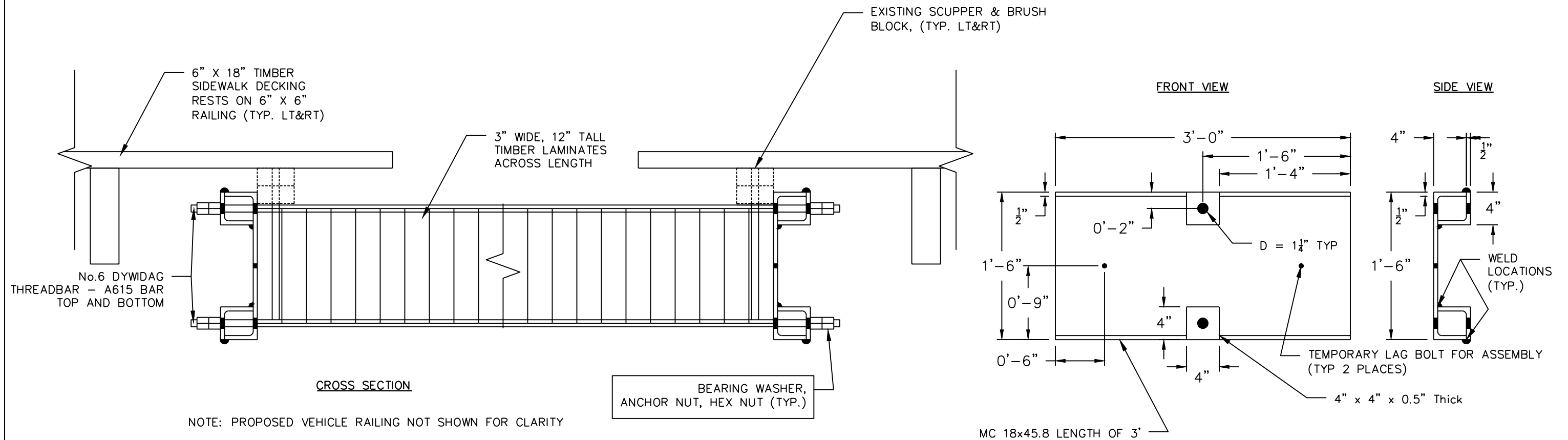
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FIRST ST
DECK PLAN

BRIDGE REHABILITATION PROJECT

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POST TENSIONING SYSTEM

INSTALLATION OF THE POST TENSIONING SYSTEM SHALL BE AS DESCRIBED
ON THE DRAWINGS

MATERIALS

1. #6 DYWIDAG THREADBAR, ASTM 615
2. ANCHOR NUT AND BEARING WASHER (20° SKEW, FIRST ST)
3. CHANNEL SHALL BE GRADE 50
4. ANGLE SHALL BE GRADE 36
5. ALL WELDING BY MDOT CERTIFIED WELDER
6. SUBMIT SHOP DRAWING IF ANY VARIATION FROM THIS DRAWING

CONSTRUCTION

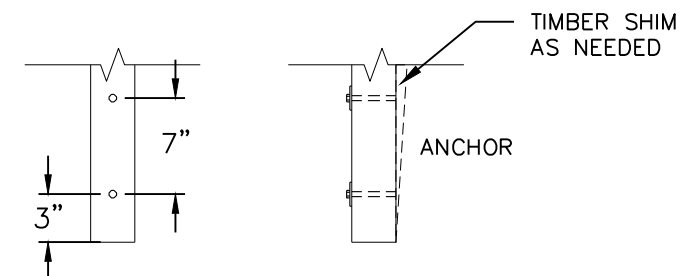
1. ALTERNATELY TIGHTEN THREADBAR@IN EQUAL INCREMENTS OF TORQUE TO AVOID OUT-OF-PLANE TIMBER GRAIN CRUSHING
2. THE FINAL INCREMENT OF TORQUE SHALL BE 500 FT-LB OF TORQUE APPLIED TO EACH ROD FOR A TOTAL OF 500 FT-LB
3. FOLLOWING A PERIOD OF 24 HOURS, AGAIN APPLY 500 FT-LB OF TORQUE TO EACH ROD FOR A TOTAL OF 500 FT-LB. AFTER ANOTHER PERIOD OF 24 HOURS, AGAIN APPLY 500 FT-LB OF TORQUE TO EACH ROD FOR A TOTAL OF 500 FT-LB
4. WHEN THE WORK IS COMPLETE, APPLY 500 FT-LB OF TORQUE TO EACH ROD FOR A TOTAL OF 500 FT-LB. THESE PROCEDURES SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER WITH A MINIMUM OF 24 HOURS NOTICE.
5. ALL THREADBAR@ SHALL HAVE DOUBLE NUTS, A NUT THAT IS TORQUED PLUS A HEX NUT AS KEEPER.

BOLTED POST: 3/8" DIA. GALVANIZED LAG BOLT WITH A MINIMUM OF 6
INCHES PENETRATION INTO TIMBER ANCHORING SUBSTRATE.

3" X 8" CAP RAIL. S4S, ATTACH TO
POST WITH (4) 5/16" X 6" STAR DRIVE
CONSTRUCTION LAG SCREWS. ATTACH TO
TOP RAIL WITH 5/16" X 5" STAR DRIVE
CONSTRUCTION LAG SCREWS @ 18" CENTERS

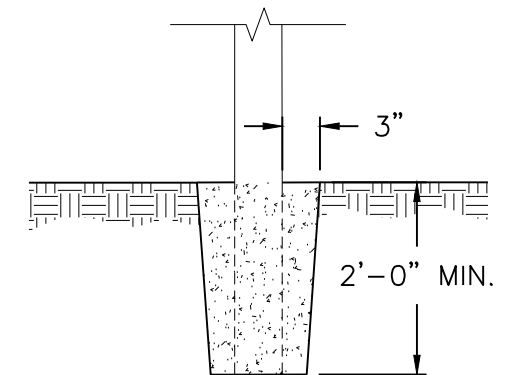
6" X 6" X 4'-5 1/2"
SIDEWALK RAILPOST. S4S.

TYPICAL PEDESTRIAN GUARDRAIL SECTION



TYPICAL PEDESTRIAN GUARDRAIL POST ANCHORS

POST TENSIONING CHANNEL DETAIL



GROUND POST DETAIL

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POST TENSIONING SYSTEM
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- REMOVE AND REPLACE 12"x12"x26' CAP NORTHEAST QUADRANT AS FOLLOWS:
1. REMOVE 3/4" DIA. DOME HEAD DRIVE SPIKES OR HEADS IN PANELS TO BE LIFTED.
 2. LIFT ONLY THE PANELS ATTACHED TO THIS SECTION OF PILE CAP A MAXIMUM OF 2 INCHES.
 3. CUT 3/4" DIA. DRIFT PINS CONNECTING PILE CAP TO PILE.
 4. REPLACE PILE CAP PRE-DRILLED TO ACCEPT DRIFT PIN INTO PILE.
 5. CORE HOLE THROUGH PANEL TO AT PILE, FIELD DRILL PILE, DRIVE DRIFT PIN TO CONNECT PILE CAP TO PILE ADJACENT TO EXISTING DRIFT PINS NEAR CENTER AND A MINIMUM OF 2 INCHES FROM EDGE OF PILE AS DIRECTED BY THE ENGINEER.
 6. RECONNECT PANELS TO PILE CAP IN KIND WITH DOME HEAD BOLTS.
 7. PAID FOR AS "STRUCTURE, TIMBER" LS.

