AASHTO T-3 TRIAL DESIGN BRIDGE DESCRIPTION

State: *Oregon*

Trial Design Designation: *OR-1*

Bridge Name: *Jackson School Road Over Hwy 47*

Superstructure Type: *Continuous prestressed precast Bulb"T" with composite concrete deck*

Span Length(s): *Two spans @ 139.44ft each*

Substructure Type: *Three 4.5ft. by10.0ft. reinforced concrete columns per bent*

Foundation: *Steel pipe piles (closed end) 16in. dia. by 0.5in. thickness*

Abutments: *Seat type end bents on 16in. dia. pipe piles*

Seismic Design Category (SDC): _____

Seismic Design Strategy (Type 1, 2 or 3): _____

Design Spectral Acceleration at 1-second Period (S_{D1}):_____

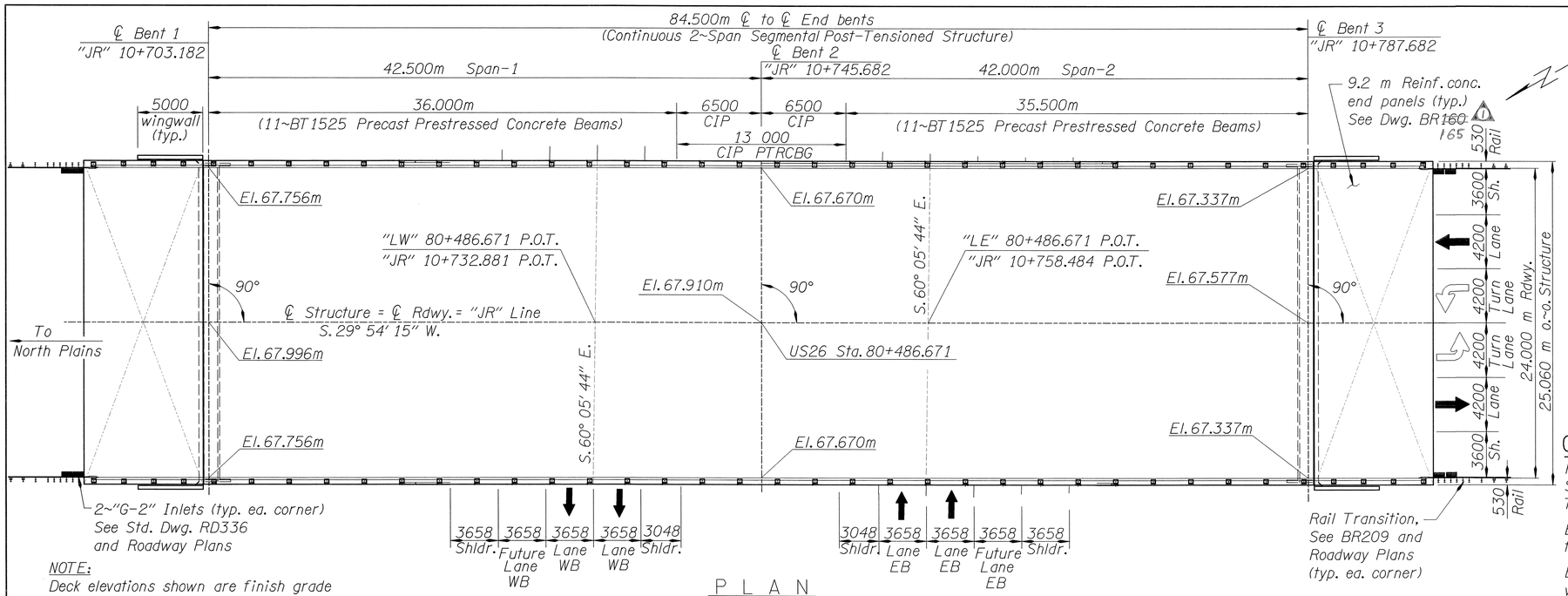
Additional Description (Optional): *Trial design is currently being done for this bridge.*

_____

_____

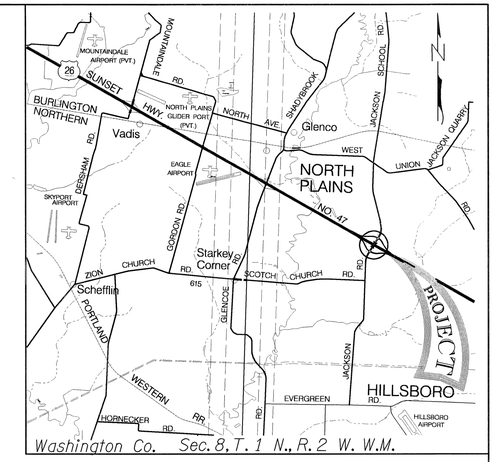
_____

_____



NOTE:
Deck elevations shown are finish grade (top of concrete).

PLAN
Scale 1:200



LOCATION MAP
No Scale

GENERAL NOTES:

Provide all materials and perform all work according to the 2002 Oregon Standard Specifications for Construction of the Oregon Department of Transportation and the Special Provisions.

Bridge is designed for HL-93 live load with an allowance of 1.2 kN/m² for future wearing surface.

Bridge is also designed to meet the following permit load with future wearing surface included,

ODOT Permit 4. Strength II Limit State- See Dwg. 65083

Concrete members are designed by the Load and Resistance Factor Design method in accordance with the 1998 AASHTO LRFD Bridge Design Specifications including 1999 to 2003 interim revisions.

Seismic design is by multi-mode analysis in accordance with the 1998 AASHTO LRFD Bridge Design Specifications including 1999 to 2003 interim Revisions. The site peak bedrock acceleration coefficient (A) is 0.20g. The assumed soil profile is Type II. The design return period is 500 years. The Response Modification Factors used are: R=5 for column moments, R=0.8 for abutment connections and R=1.0 for other components.

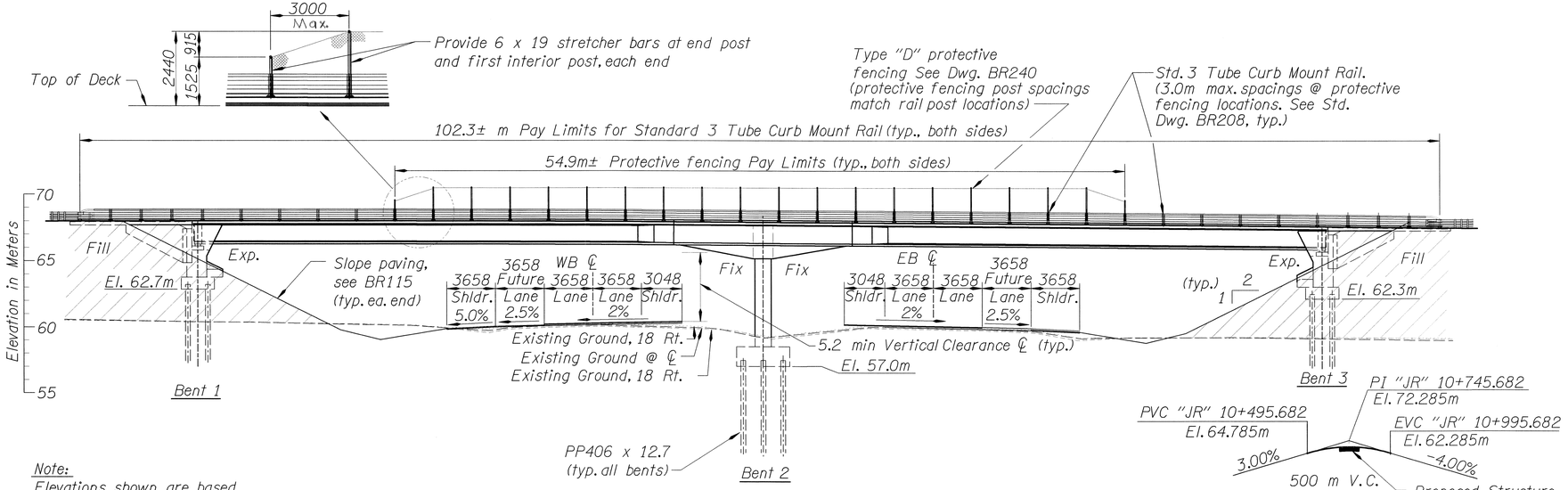
Provide spiral column reinforcement according to ASTM Specification A706M, AASHTO Specification M31 (ASTM A615M) Grade 420, AASHTO M225M (ASTM A496), or AASHTO M32M (ASTM A82).

Provide reinforcing steel conforming to ASTM specification A706M, or AASHTO M31 (ASTM A615M) Grade 420. Where reinforcing steel is field bent, provide bars conforming to ASTM A706M. Use the following splice lengths (unless otherwise shown):

Bar Size	13	16	19	22	25	29	32	36
Uncoated Splice Length (mm)	325	425	600	825	1075	1350	1700	2100
Coated Splice Length (mm)	450	600	850	1150	1500	1900	2400	2950

Splice reinforcing steel at alternate bars, staggered at least one splice length or as far as possible, unless shown otherwise.

For additional general notes, see Dwg. 65077.



Note:
Elevations shown are based on National Geodetic Vertical Datum (NGVD) of 1929.

ELEVATION
Scale 1:200

GRADELINE DIAGRAM
No Scale

NOTE: All dimensions are in millimeters (mm) except as noted.

INTERIM

	DATE	REVISION	BY
1	5-04	Corrected drawing number	EL

DRAFTED: E. Leon
CHECKED: Thiet Nguyen
REVIEWED: Hormoz Seradj

DESIGNER
REGISTERED PROFESSIONAL ENGINEER 14056 OREGON JULY 26, 1988 CRAIG SHIKE
EXPIRES: 6-30-04

BRIDGE ENGINEER
REGISTERED PROFESSIONAL ENGINEER 7093TPE OREGON MARCH 12, 2002 FRANK JOSEPH NELSON
EXPIRES: 12/31/04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

ACCOMPANIED BY DWGS. 65077-65095, BR135, BR136, BR145 BR165, BR208, BR209, BR240, BR241, BR350, 63886/GHB-1

BRIDGE NO. 19592
DATE 19-Mar-2004
CALC. BOOK 5210-5211

Jackson School Road Over Hwy 47
Jackson School Road Interchange Section
Sunset Hwy. #47 MP 58.70
Washington Co.
PLAN and ELEVATION

FEDERAL HIGHWAY ADMINISTRATION | PROJECT NUMBER
REGION 10 | OREGON DIVISION

SHEET 1 OF 20
DRAWING NO. 65076

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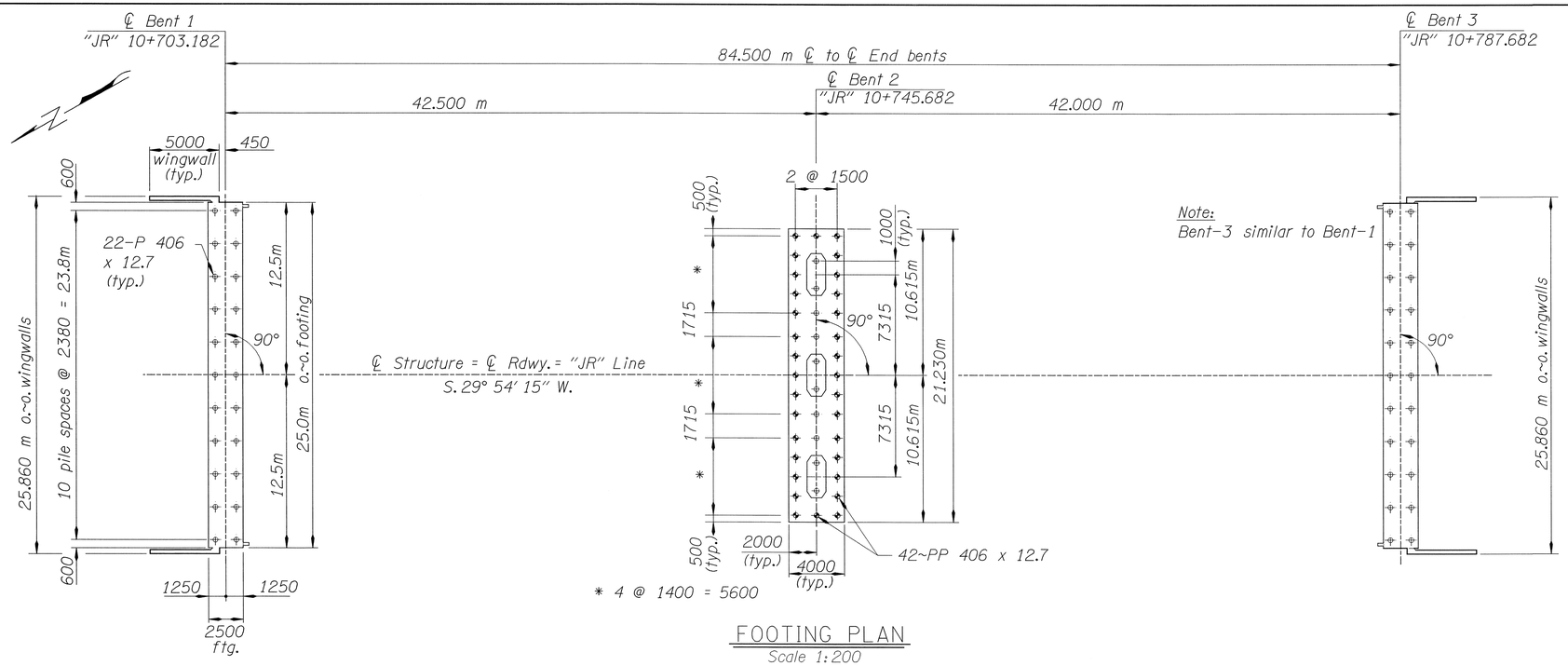
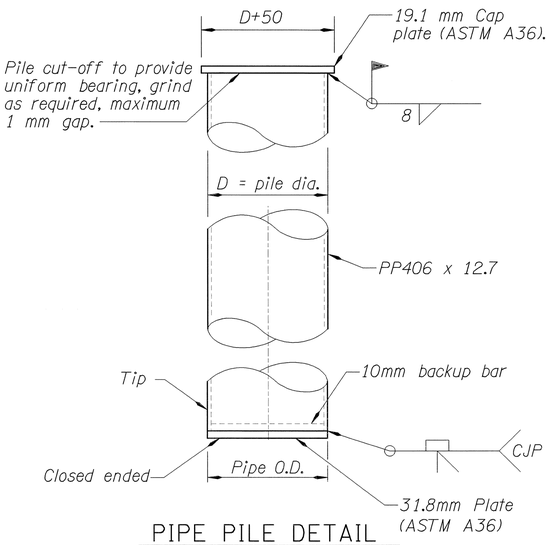
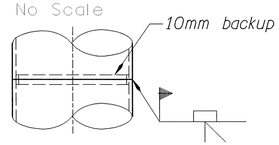


FOOTING PLAN
Scale 1:200



PIPE PILE DETAIL
No Scale



PIPE PILE SPLICE DETAIL
No Scale

GENERAL NOTES CONTINUED:

Support the bottom mat of reinforcing steel from forms with precast mortar blocks at 600mm maximum centers each way. Support the top mat of reinforcing steel from the bottom mat of reinforcing steel with reinforcing bar supports by Dayton Superior Co. (SBU, BBU or CHCU) or approved equal at 600mm maximum centers.

Place bars 50mm clear of the nearest face of concrete unless shown otherwise. Field bend the top of stirrups extending from prestressed precast units.

Provide fully threaded rods at exterior girder diaphragms according to ASTM A36M.

Do not fabricate reinforcing steel for columns until final footing elevations have been determined in the field.

Provide Class 50-19 concrete in prestressed precast Bulb-T beams according to the detail plans, see Dwg. 65091. Provide a minimum concrete strength of 35 MPa at transfer of prestress.

Provide Class 35-19.0 concrete in post-tensioned box girder superstructure.

Provide Class HPC30-19.0 microsilica concrete for the deck and closure diaphragms (Beam C).

Provide Class 30-19.0 concrete in columns and reinforced concrete end panels.

Provide Class 25-37.5 or 19.0 concrete at all other locations.

Provide prestressing steel according to the detail plans.

Provide structural steel conforming to ASTM specification A36 unless shown otherwise.

Structural steel plates are fractional inch thickness expressed in equivalent metric units.

For structural steel connections, provide high-strength fasteners conforming to AASHTO Specification M164 (ASTM A325, unless shown otherwise).

Perform all welding in accordance with the latest edition of the AWS Bridge Welding Code.

Hot-dip galvanize all bolts, washers, nuts, and structural steel after fabrication. Repair damaged galvanizing according to ASTM Specification A780.

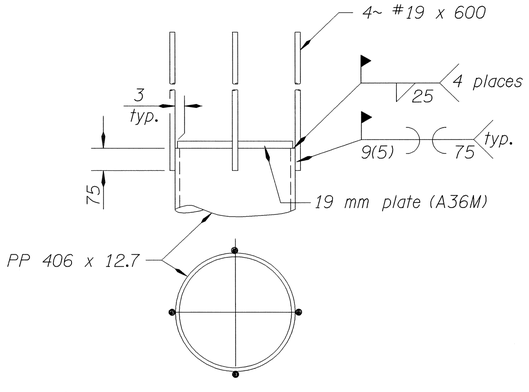
Provide fully threaded anchor rods for resin bonded anchors according to AASHTO Specification M314, Grade 105. Select a high strength resin from the Department's Qualified Products List.

Piling Notes:
Provide PP406 x 12.7 conforming to ASTM Specification A252, Grade 2 at all bents.

Drive all piles closed ended to an ultimate capacity of 2315 kN using driving criteria developed from a Wave Equation Analysis.

Pile tip elevation for minimum penetration is as follows:
Bent-1 - Elev. 35.000 m
Bent-2 - Elev. 33.000 m
Bent-3 - Elev. 34.000 m

See Dwg. 63886/GHB-1 for Foundation Data



ANCHOR PILE DETAIL
No Scale

NOTE: All dimensions are in millimeters (mm) except as noted.

△	DATE	REVISION	BY

DRAFTED: Philip G. Amaya
CHECKED: Thiet Nguyen
REVIEWED: Hormoz Seradj

DESIGNER
REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE
EXPIRES: 6-30-04

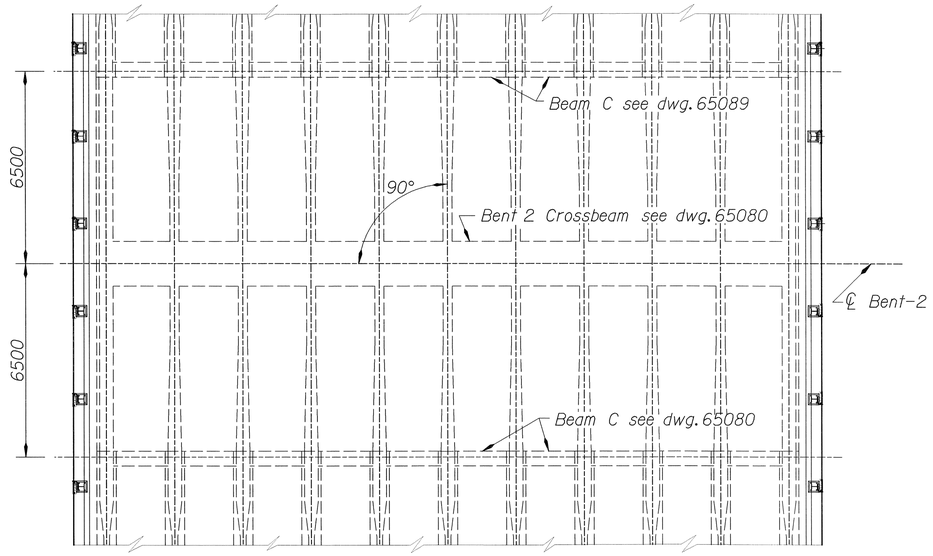
OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592
DATE 19-Mar-2004
CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

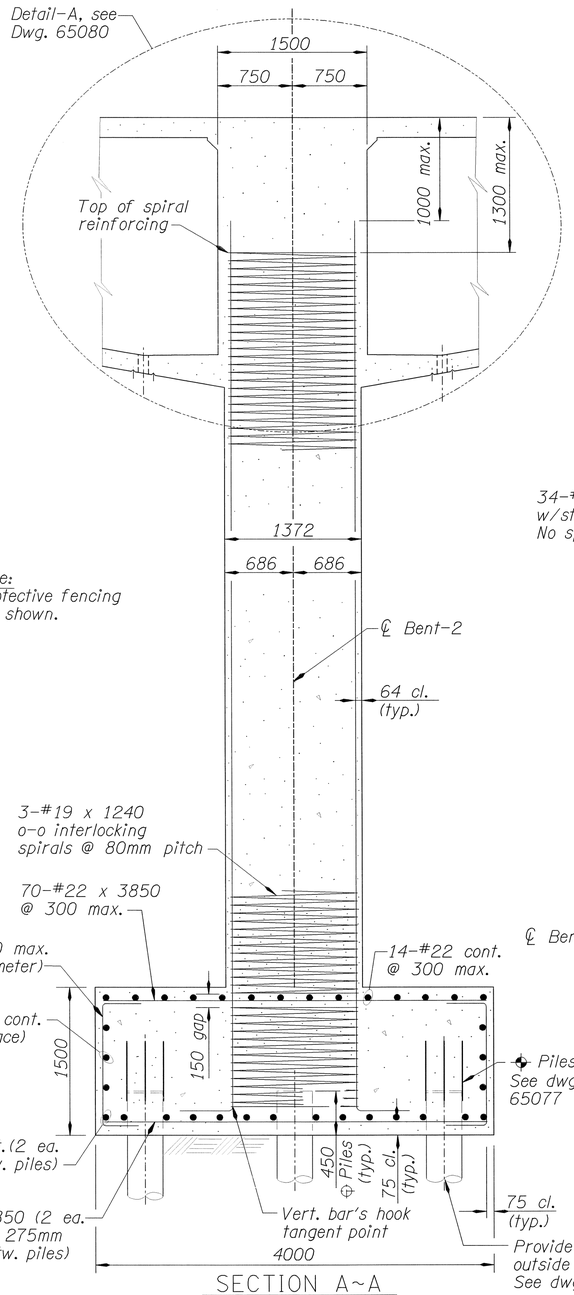
FOOTING PLAN

SHEET 2 OF 20
DRAWING NO. 65077



PLAN BENT-2

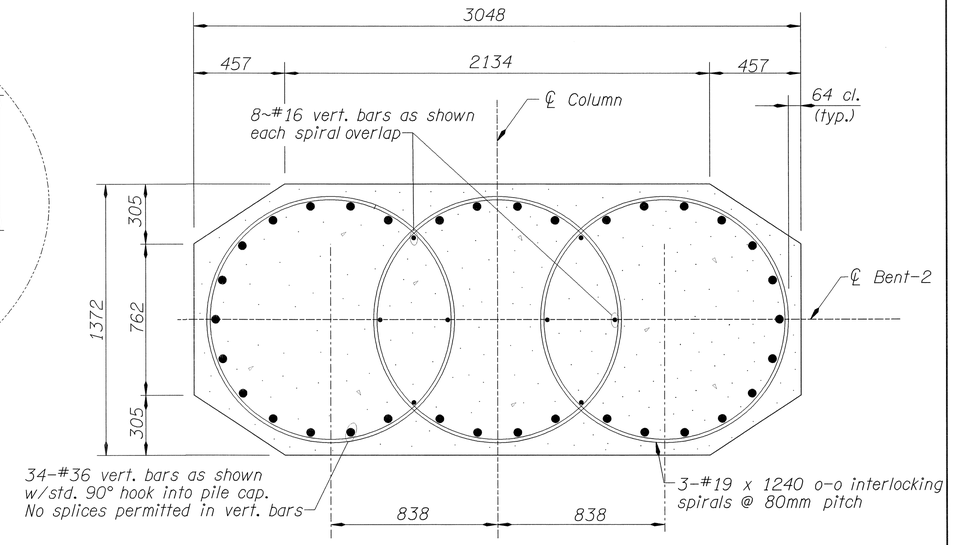
Scale 1: 100



Note:
Protective fencing not shown.

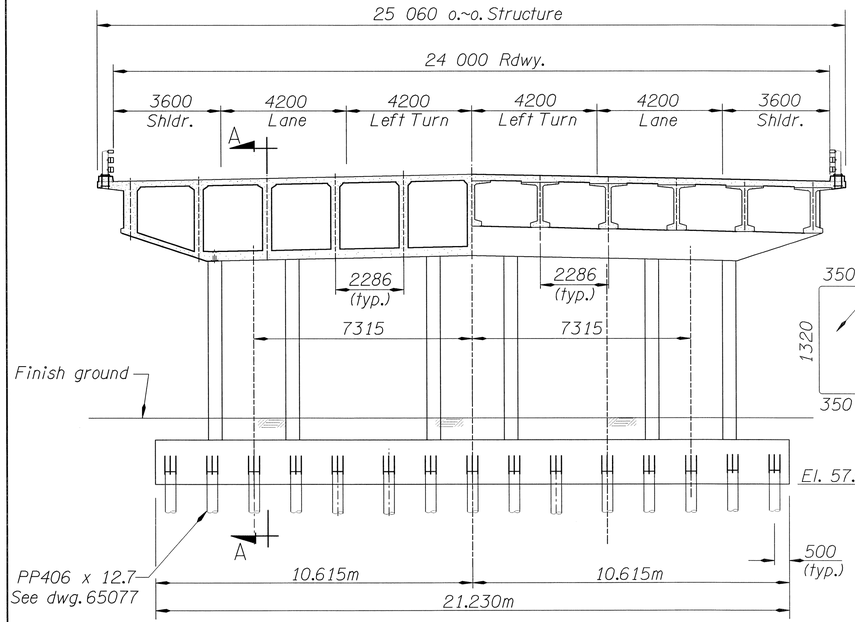
SECTION A-A

Scale 1: 30



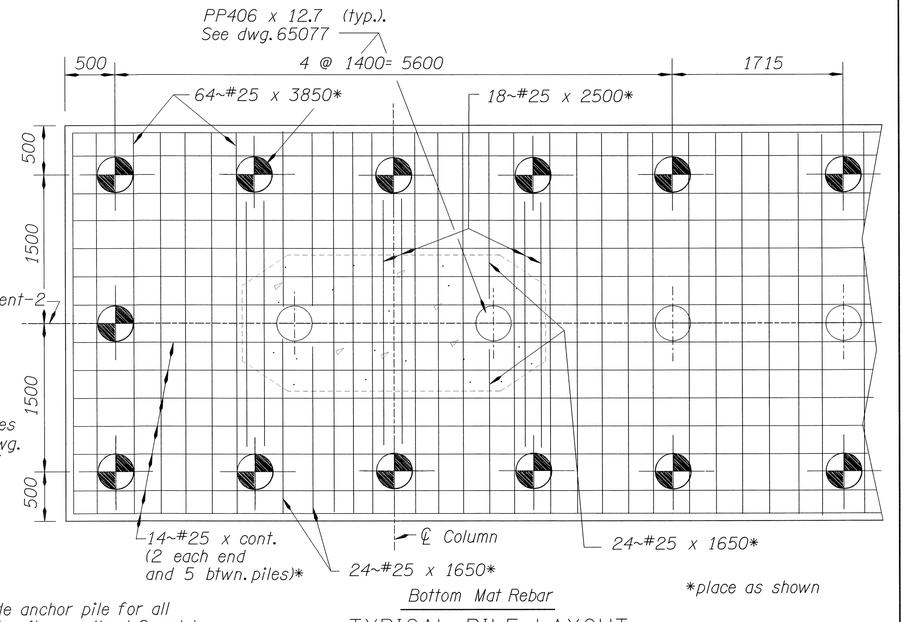
TYPICAL COLUMN SECTION

Scale 1: 15



ELEVATION BENT-2

Scale 1: 100



Bottom Mat Rebar

*place as shown

TYPICAL PILE LAYOUT

Scale 1: 30

NOTE: All dimensions are in millimeters (mm) except as noted.

	DATE	REVISION	BY

DRAFTED: P.G. Amaya

CHECKED: Thiet Nguyen

REVIEWED: Hormoz Seradj

DESIGNER

REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE

EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592

DATE 19-Mar-2004

CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

BENT 2 DETAILS

SHEET 4 OF 20

DRAWING NO. 65079

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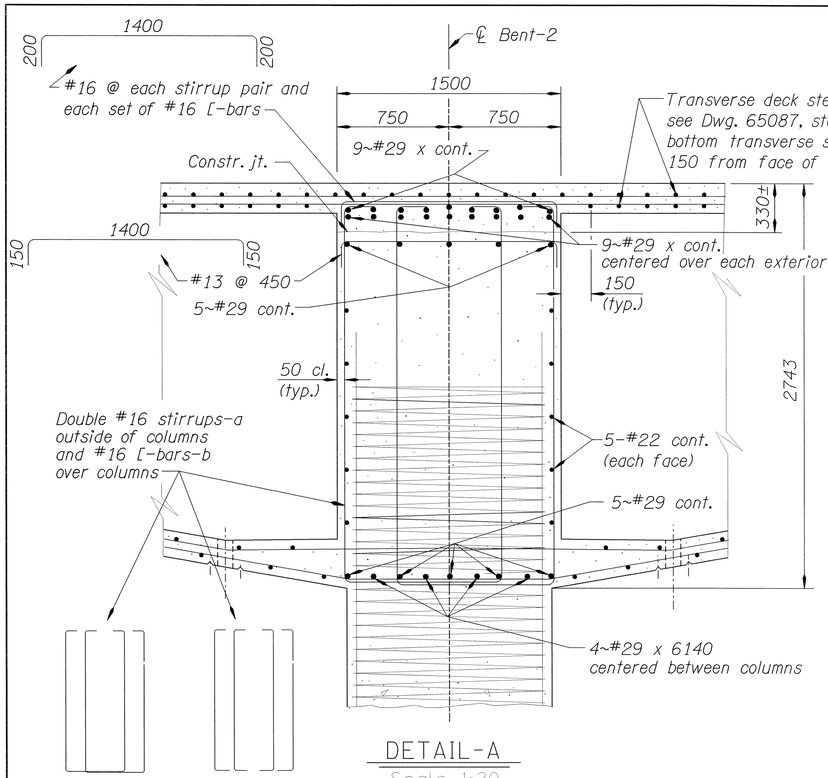
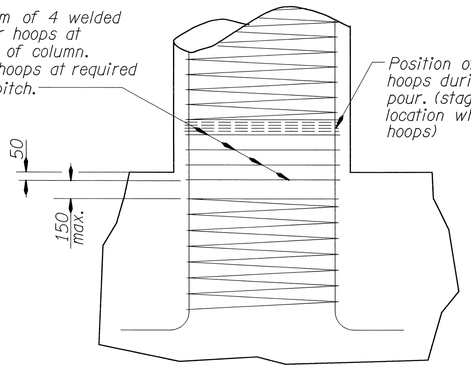
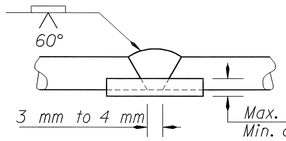
1:100 - BENT 2





OPTIONAL HOOP DETAIL AT BOTTOM OF COLUMN

No Scale



ALTERNATE WELDED SPLICE

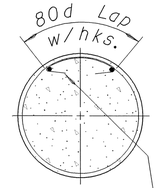
(Except ASTM A82)

Welding of reinforcing steel splices shall be in accordance with ANSI/AWS D1.4-79. "Structural Welding Code Reinforcing Steel"

No Scale

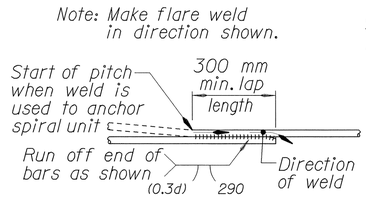
Note - A:

ASTM A706M shall be used for all welded splices, except ASTM A615M Grade 420, ASTM A82M or ASTM A496M may be used if copies of the chemical composition analysis are submitted and approved as weldable by the Engineer. Spirals shall be anchored at each end or discontinuity with one extra turn and a splice to itself as shown. Where permitted on plans closed hoops shall conform to the requirements of this detail. Lapped splice is not allowed within 1/6 the column height or max. column cross sectional dimension or 460 mm from top of footing or bottom of cap beam, or in columns with spirals less than 1000 mm in diameter.



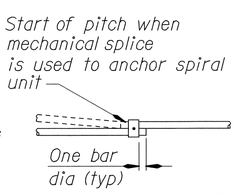
LAPPED SPLICE

See Note A



WELDED SPLICE

See Note A

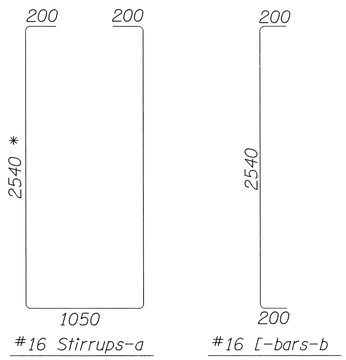


MECHANICAL SPLICE

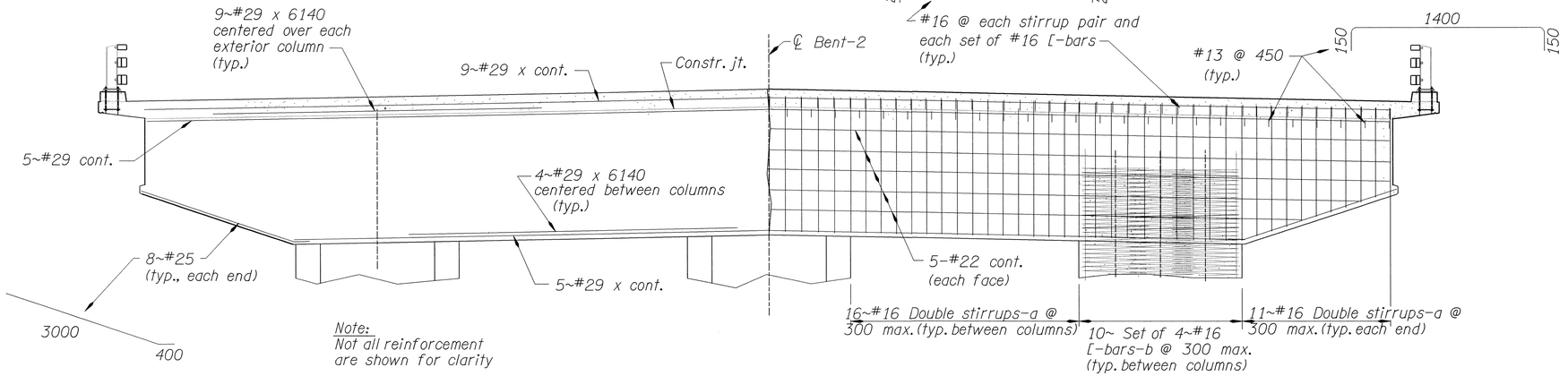
(Not allowed for ASTM A82M spirals)

SPIRAL SPLICE / TERMINATION DETAIL

No Scale



** Note:*
Adjust stirrup height as required at exterior bays.



Note:
Not all reinforcement are shown for clarity

BENT 2 CROSSBEAM

Scale 1:10

NOTE: All dimensions are in millimeters (mm) except as noted.

△	DATE	REVISION	BY

DRAFTED: Philip G. Amaya

CHECKED: Thiet Nguyen

REVIEWED: Hormoz Seradj

DESIGNER

REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1989 CRAIG SHIKE

EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592

DATE 19-Mar-2004

CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

BENT 2 MISC. DETAILS

SHEET 5 OF 20

DRAWING NO. 65080

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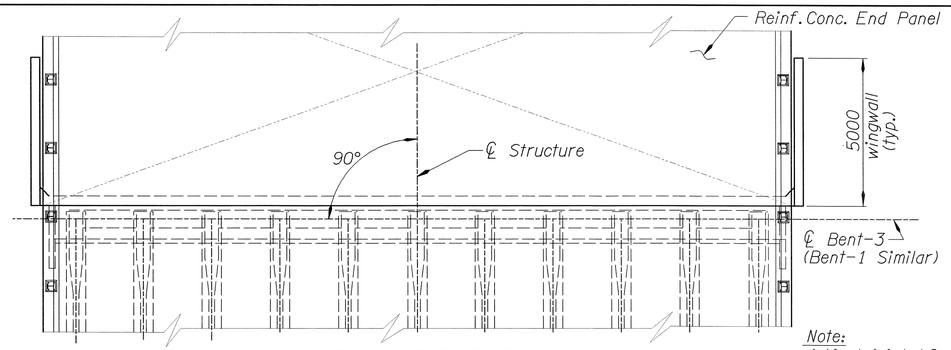
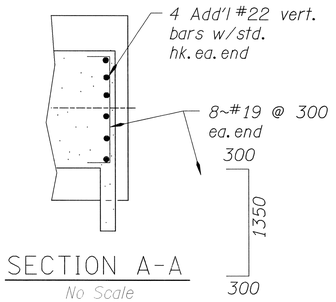
1:100 - BENT 2 MISC



PLAN BENT-3

(Bent-1 Similar)

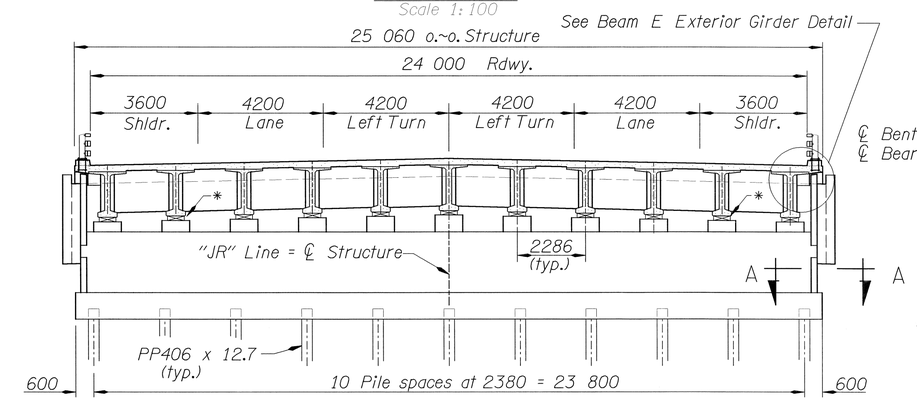
Scale 1:100



SECTION A-A

No Scale

Note:
Adjust joint 4.6 mm per 10°C change from 11°C

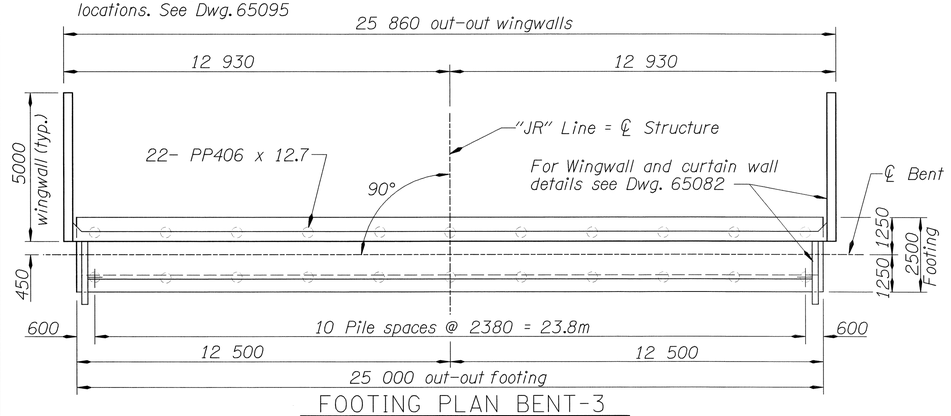


ELEVATION BENT-3

(Bent-1 Similar)

Scale 1:100

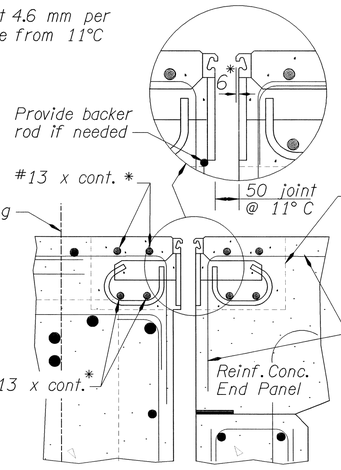
*Provide 2 guided bearings @ locations shown. Provide sliding bearings @ other locations. See Dwg. 65095



FOOTING PLAN BENT-3

(Bent-1 Similar)

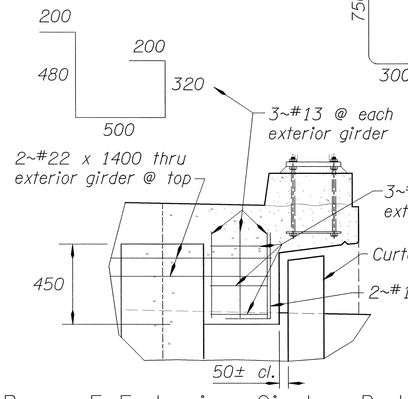
Scale 1:100



Strip Seal Detail

No Scale

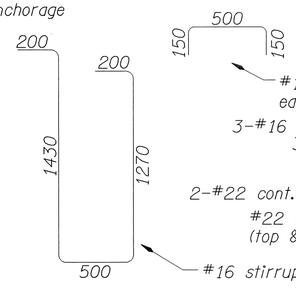
*Both sides of joint



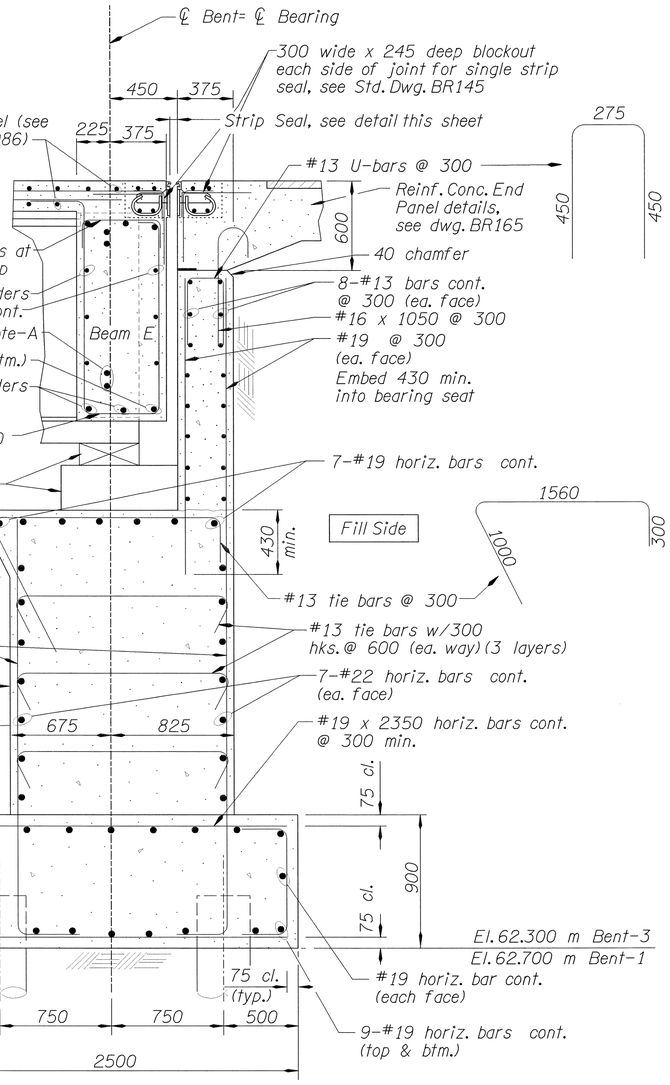
Beam E Exterior Girder Detail

Note-A:
2-#22 x 1700 thru girders top & btm. at interior girders, 2~#22 x 1400 thru exterior girder @ top and 2-22mm dia. x 800 threaded rods (ASTM A307) one side of exterior giders, @ btm.

Note:
See dwg. 65094 for additional reinforcement @ post-tensioning anchorage



See dwg. 65095 for bearing and concrete pedestal details



SECTION BENT-3

(Bent-1 Similar)

Scale 1:20

NOTE: All dimensions are in millimeters (mm) except as noted.

	DATE	REVISION	BY

DRAFTED: Philip G. Amaya

CHECKED: Thiet Nguyen

REVIEWED: Hormoz Seradj

DESIGNER

REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE

EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592

DATE 19-Mar-2004

CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

ABUTMENT DETAILS

SHEET 6 OF 20

DRAWING NO. 65081

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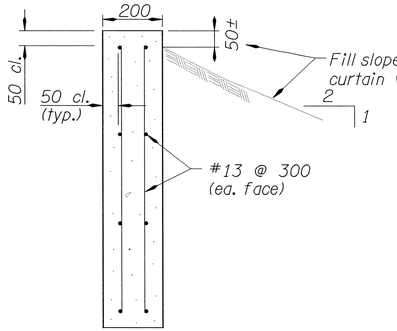
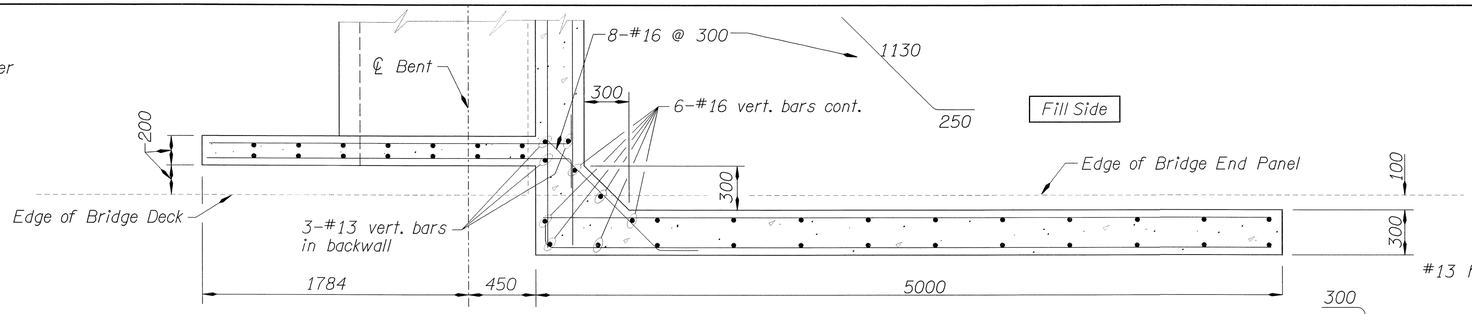
1 - ABUTMENT



TYPICAL SECTION

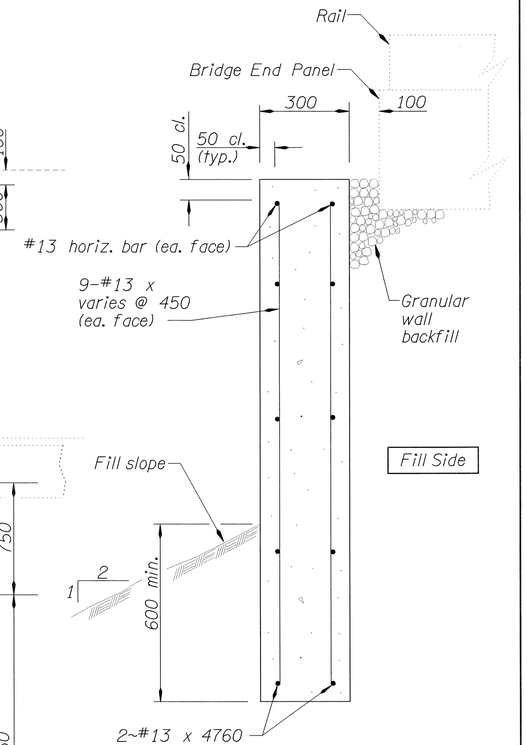
Curtain Walls

Scale 1:10



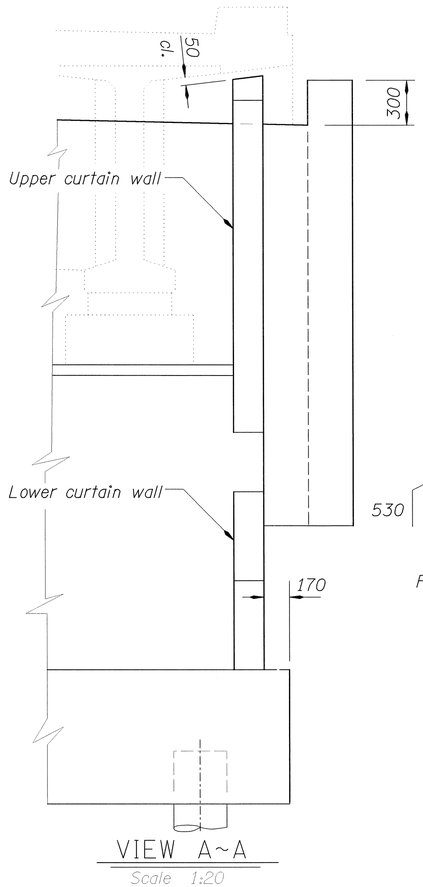
PLAN

Scale 1:20



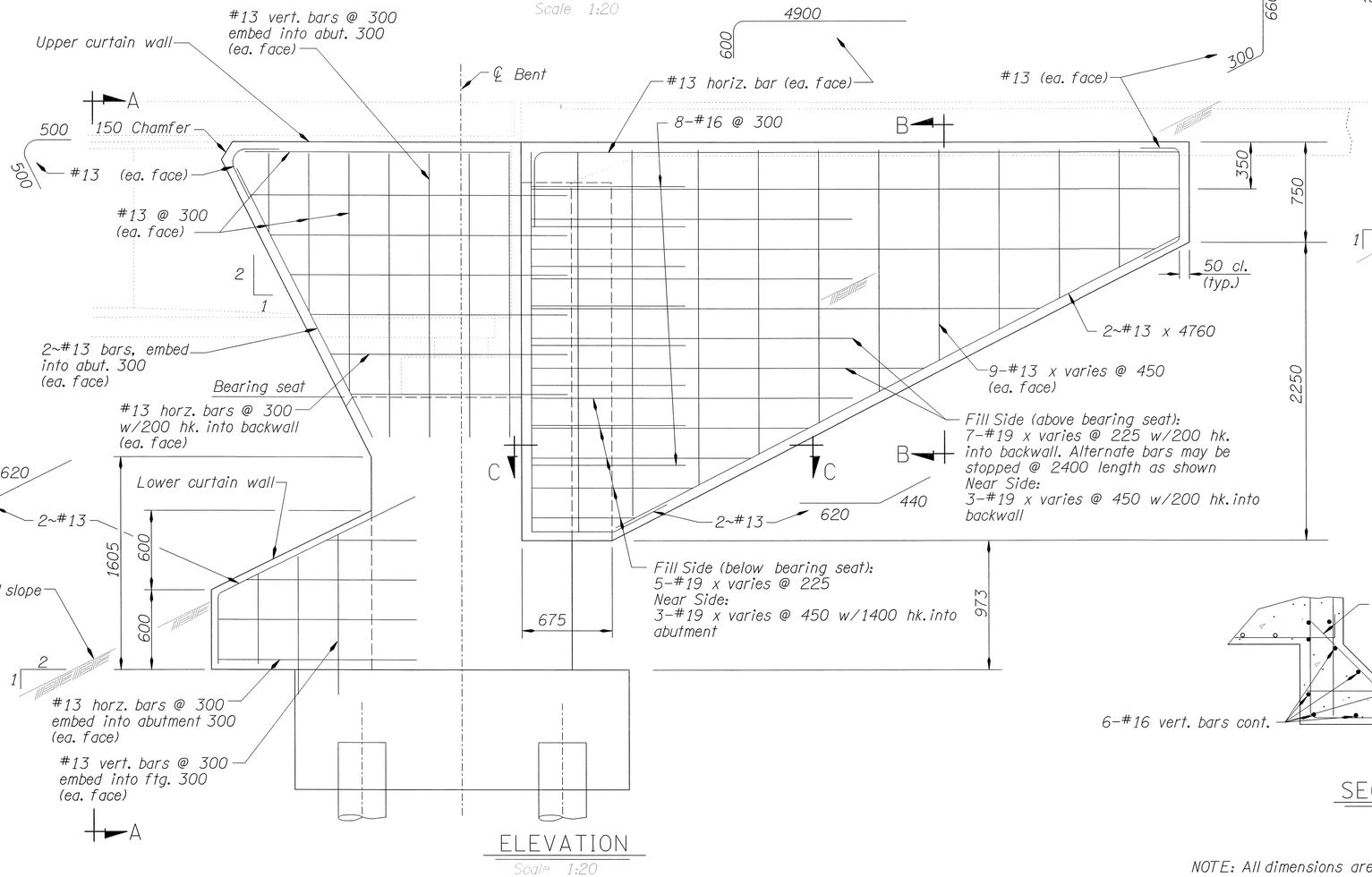
SECTION B~B

Scale 1:10



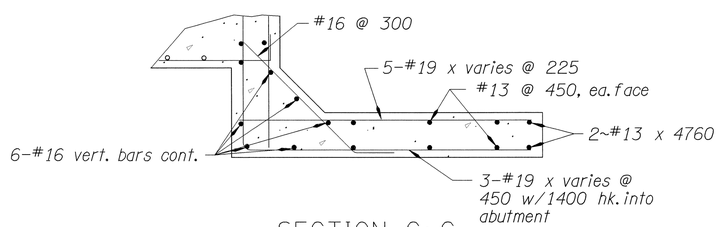
VIEW A~A

Scale 1:20



ELEVATION

Scale 1:20



SECTION C~C

Scale 1:20

NOTE: All dimensions are in millimeters (mm) except as noted.

	DATE	REVISION	BY

DRAFTED: Philip G. Amaya

CHECKED: Thiet Nguyen

REVIEWED: Hormoz Seradj

DESIGNER

REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE

EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592

DATE 19-Mar-2004

CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

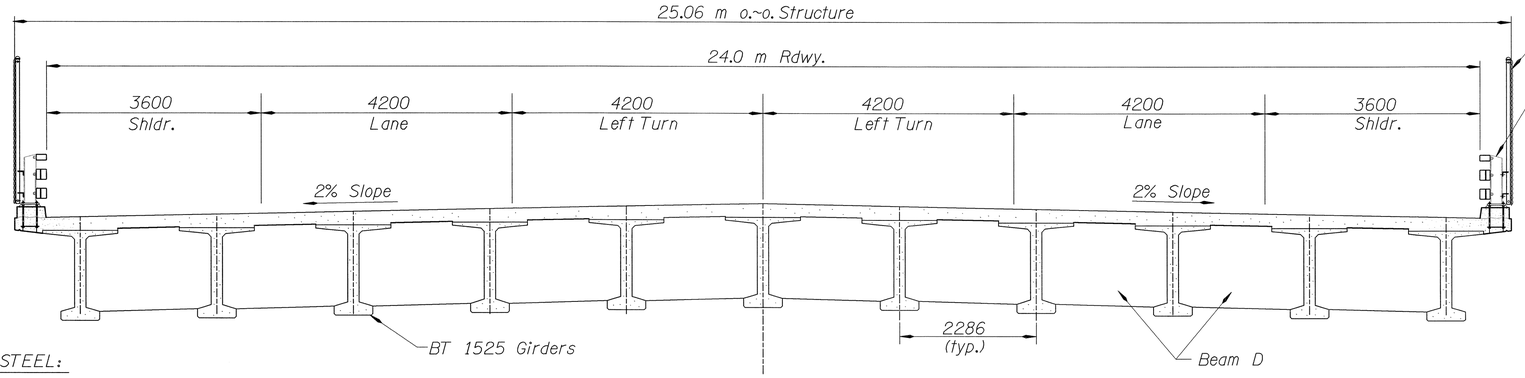
WINGWALL AND CURTAIN WALL DETAILS

SHEET 7 OF 20

DRAWING NO. 65082

F:\ODOT_DATA\PROJECTS\12393 (jackson)\newer 2-20-04\EL19592b.dgn 3/19/2004 7:43:25 PM hwye03b

1:20 - WINGWALL

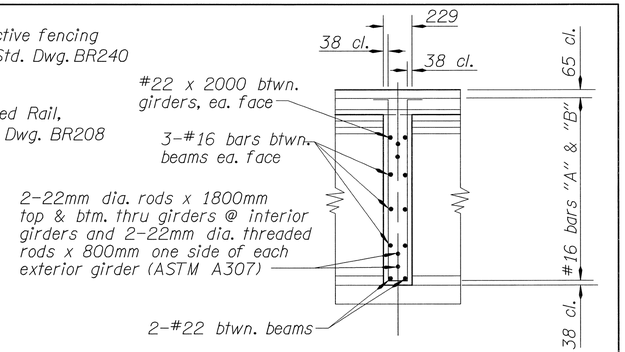


Type "D" Protective fencing each side. See Std. Dwg. BR240

3-Tube Curb Mounted Rail, each side. See Std. Dwg. BR208

TYPICAL DECK SECTION AT PRECAST GIRDERS

Scale: 1:50



TYPICAL - BEAM "D"

No Scale

DECK STEEL:

Top Mat

132-#13 longit. bars cont. placed as shown

#16 transverse bars @ 190 ctrs.

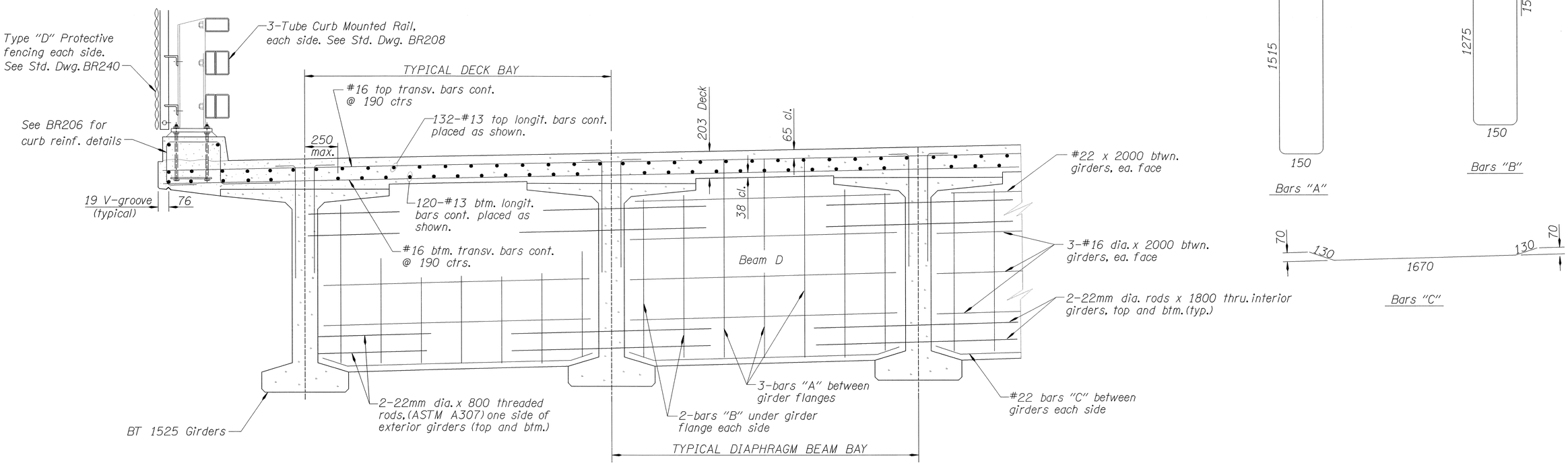
Stop transverse bars 50 cl. of exp. jt. blockout

Bottom Mat

120-#13 longit. bars cont.(11 btw. beams and 5 at overhang)

#16 transverse bars at 190 ctrs.

Stop transverse bars 50 clear of end beam face.



PARTCIAL DECK SECTION

Scale: 1:15

NOTE: All dimensions are in millimeters (mm) except as noted.

	DATE	REVISION	BY

DRAFTED: Philip G. Amaya

CHECKED: Thiet Nguyen

REVIEWED: Hormoz Seradj

DESIGNER

REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE

EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592

DATE 19-Mar-2004

CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

DECK SECTION AT PRECAST GIRDERS

SHEET 11 OF 20

DRAWING NO. 65086

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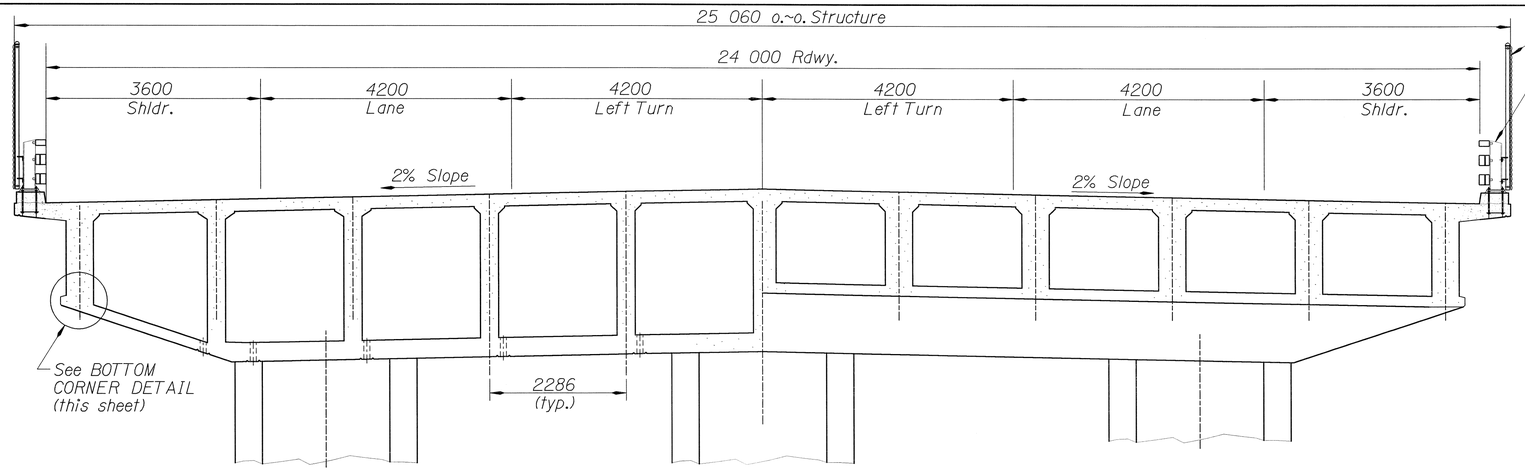
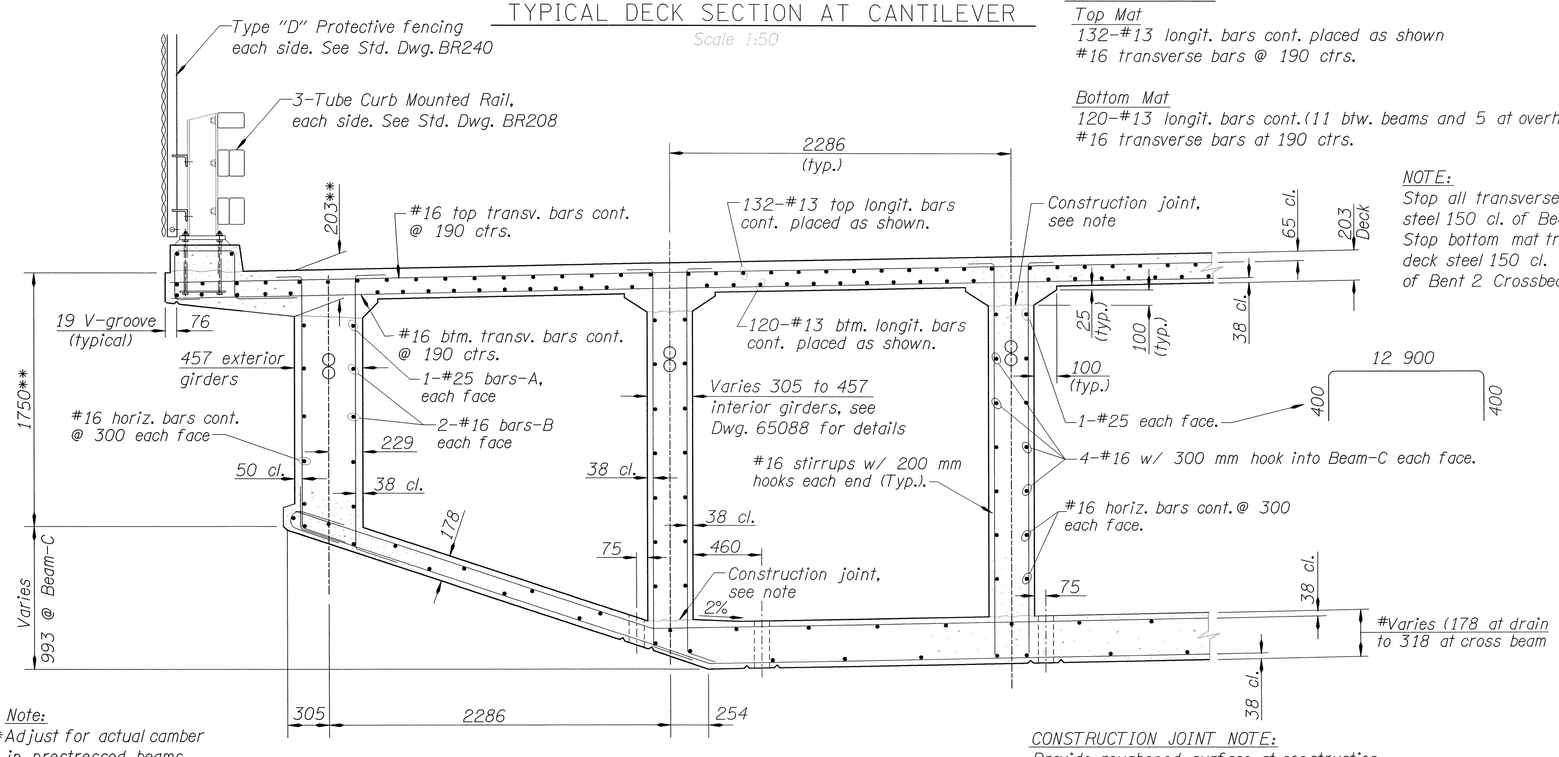
1:50 - DECK SECTION



TYPICAL DECK SECTION AT CANTILEVER

Scale 1:50



Note:
**Adjust for actual camber in prestressed beams

PARTCIAL DECK SECTION

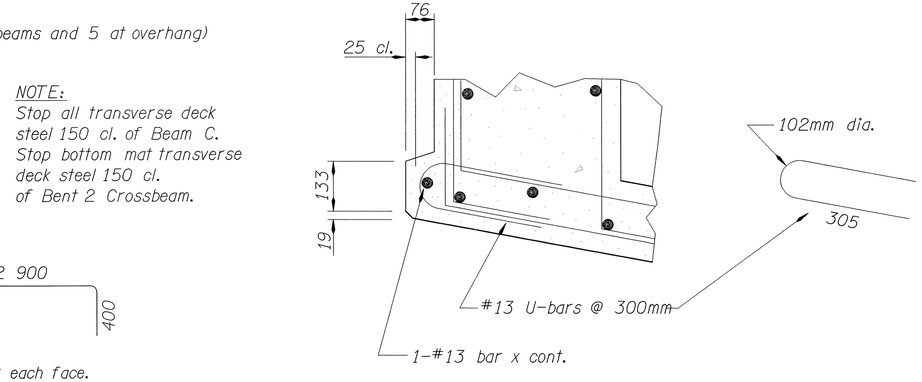
Scale 1:20

DECK STEEL :

Top Mat
132-#13 longit. bars cont. placed as shown
#16 transverse bars @ 190 ctrs.

Bottom Mat
120-#13 longit. bars cont.(11 btw. beams and 5 at overhang)
#16 transverse bars at 190 ctrs.

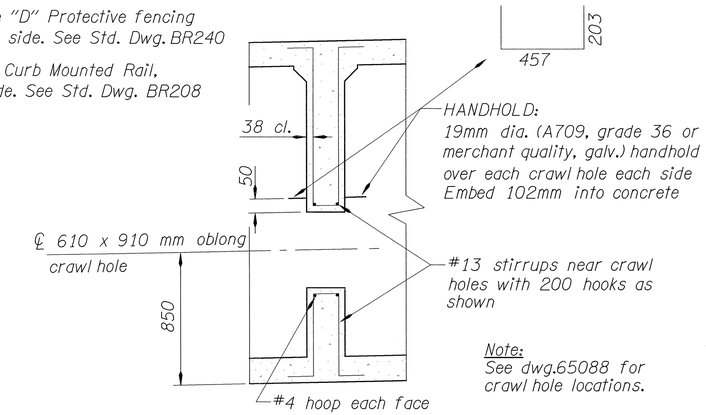
NOTE:
Stop all transverse deck steel 150 cl. of Beam C.
Stop bottom mat transverse deck steel 150 cl. of Bent 2 Crossbeam.



BOTTOM CORNER DETAIL

No Scale

CONSTRUCTION JOINT NOTE:
Provide roughened surface at construction joints. Do not trowel or smooth aggregate into space. Keep deviation from a plane surface less than 13mm



Note:
See dwg.65088 for crawl hole locations.

TYPICAL GIRDER AT CRAWL HOLE

No Scale

NOTE:
Stop transverse bottom slab steel 150 cl. of Beam C and Bent 2 Crossbeam.

BTM.SLAB STEEL

Top Mat
51- #16 longit. cont. as shown.
#16 transverse straight bars @ 350 ctrs. w/300 hook into exterior stem.

Bottom Mat
52- #16 longit. cont. as shown.
#16 transverse straight bars @ 350 ctrs. w/300 hook into exterior stem.
Alternate top and bottom layers @ 175 ctrs.

NOTE: All dimensions are in millimeters (mm) except as noted.

	DATE	REVISION	BY

DRAFTED: Philip G. Amaya
CHECKED: Thiet Nguyen
REVIEWED: Hormoz Seradj

DESIGNER
REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE
EXPIRES: 6-30-04

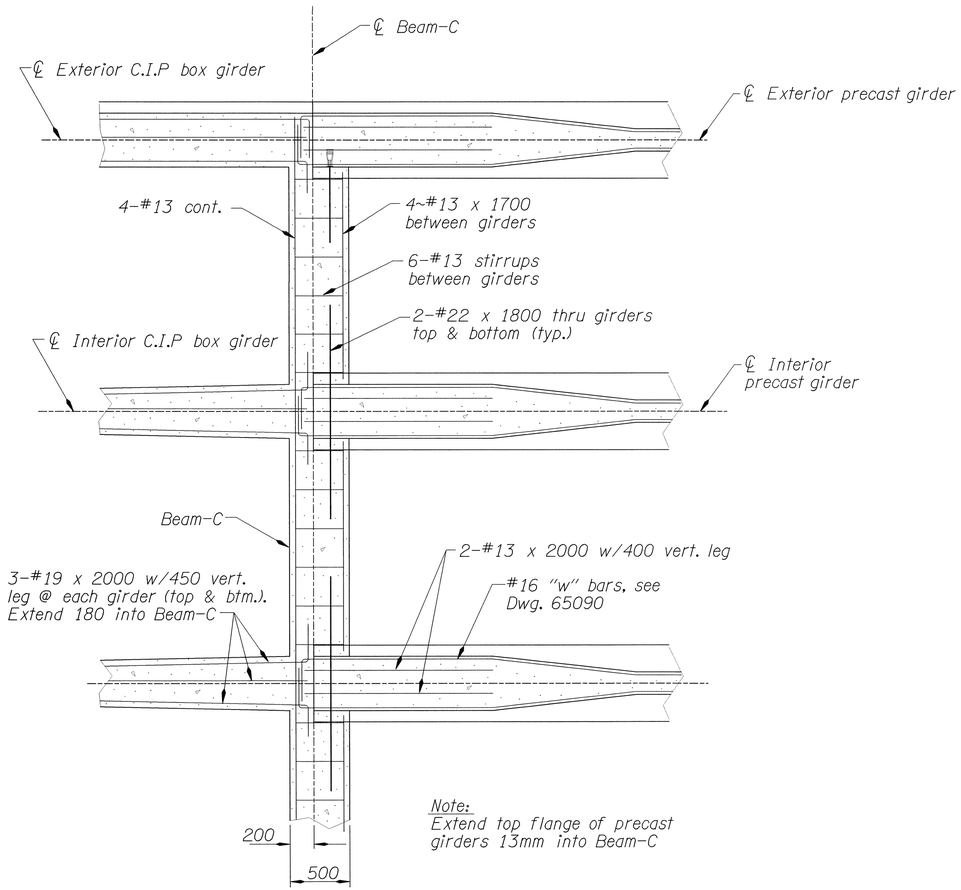
OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592
DATE 19-Mar-2004
CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

DECK SECTION AT CAST-IN-PLACE BOX GIRDERS

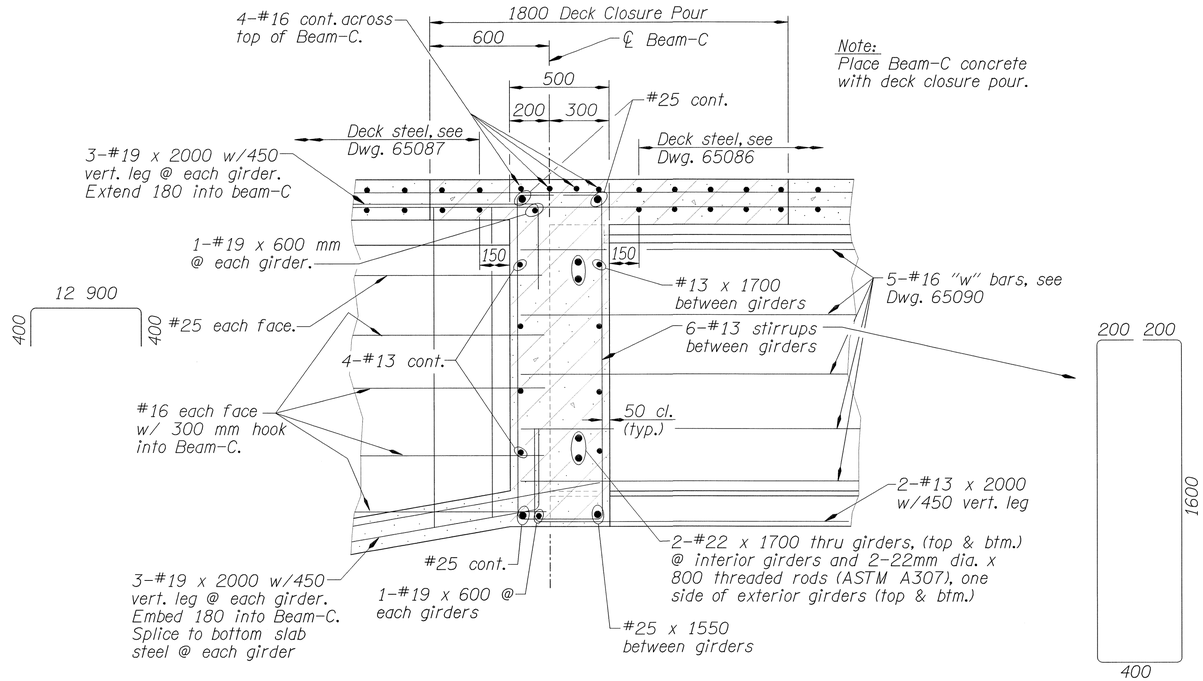
SHEET 12 OF 20
DRAWING NO. 65087



Note:
Extend top flange of precast girders 13mm into Beam-C

PARTIAL PLAN ~ BEAM-C

Scale 1:25



Note:
Place Beam-C concrete with deck closure pour.

TYPICAL SECTION ~ BEAM-C

Scale 1:15

NOTE: All dimensions are in millimeters (mm) except as noted.

△	DATE	REVISION	BY

DRAFTED: Philip G. Amaya
CHECKED: Thiet Nguyen
REVIEWED: Hormoz Seradj

DESIGNER
REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE
EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592
DATE 19-Mar-2004
CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

BEAM-C DETAILS

SHEET 14 OF 20
DRAWING NO. 65089

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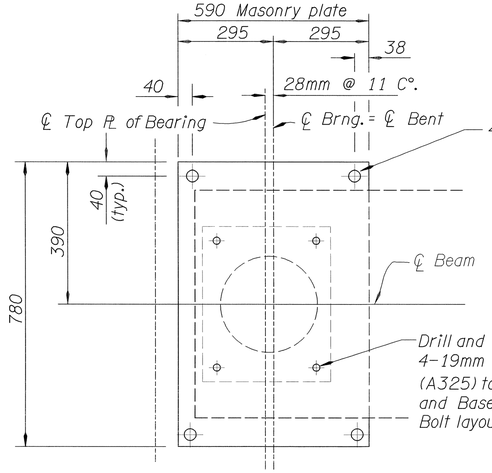
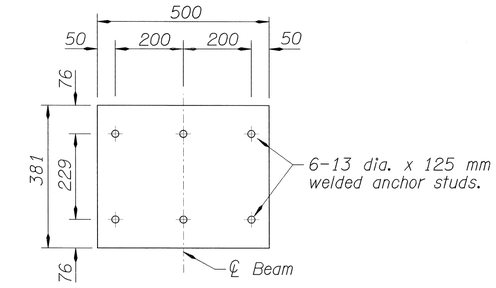
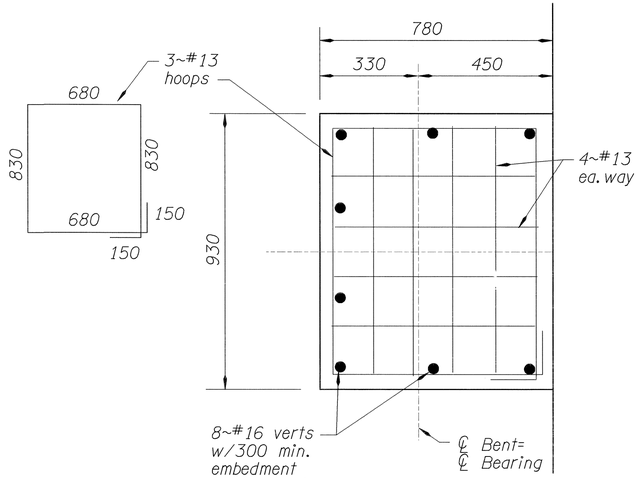
1:10 - BEAM C



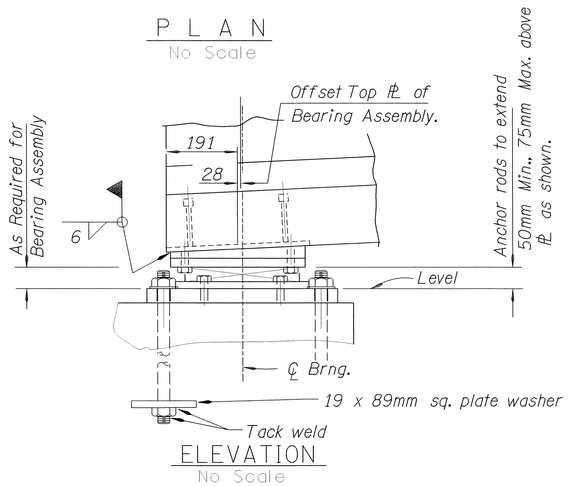


PLAN AT PREST. BM. ℗
SHOWING STUD LAYOUT
No Scale

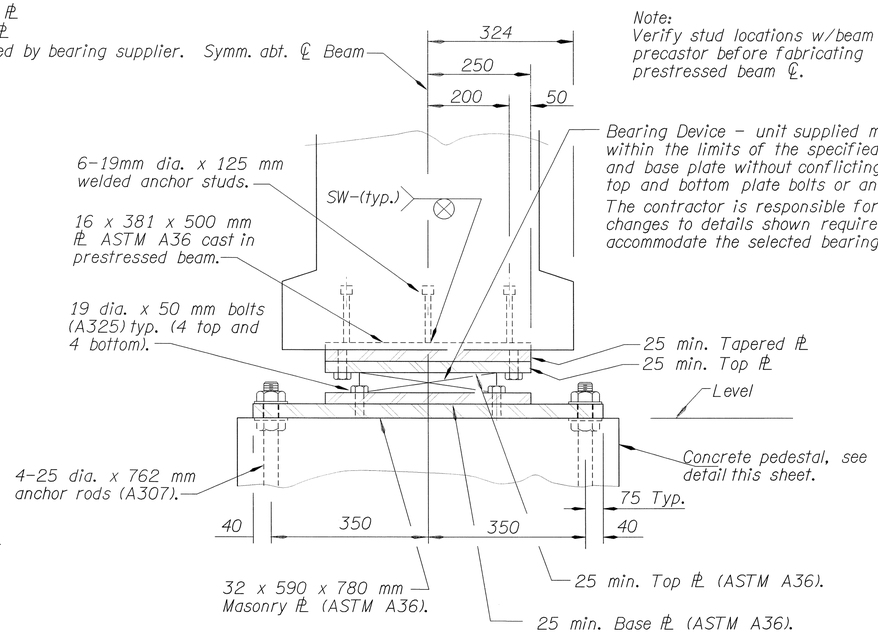


PLAN

PLAN
No Scale



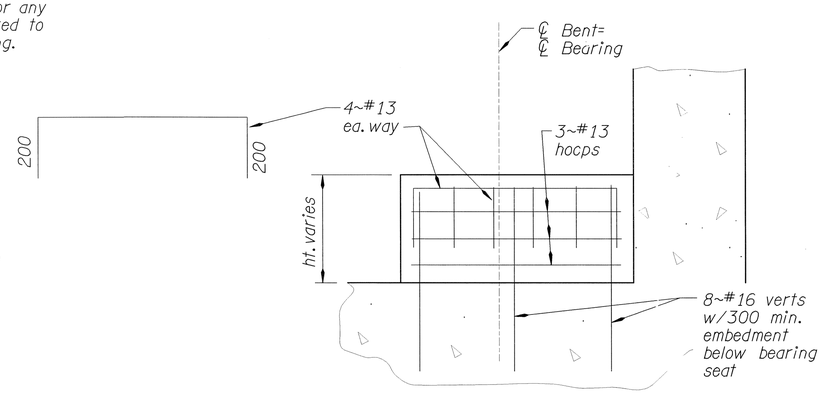
ELEVATION
No Scale



END VIEW
No Scale

Note:
Verify stud locations w/beam precastor before fabricating prestressed beam ℄.

Bearing Device - unit supplied must fit within the limits of the specified top plate and base plate without conflicting with the top and bottom plate bolts or anchor bolts. The contractor is responsible for any changes to details shown required to accommodate the selected bearing.



SECTION
TYPICAL CONCRETE PEDESTAL
No Scale

EXPANSION BEARING DESIGN NOTES:

Select a pot bearing, disk bearing, or spherical bearing from the Department's QPL.

Provide 9 multi-directional and two guided bearings each at Bents 1 and 3.

Locate guided bearings under the first interior girders as shown on dwg. 65081

Provide a minimum rotational capacity of 0.015 Radians.

Secure the upper and lower components of the bearing to tapered plates and masonry.

Paint all exposed metal surfaces, except contact surfaces, per 00582.38.

Provide additional top and btm. plates as shown so that bearings can be removed with minimal jacking.

Ensure bearings are level in their final position.

Design movements for a 11° C. mean temperature are:
- @ Max. movement @ 17°C Temperature Rise : 8mm
- @ Max. movement @ 22°C Temperature Fall : -10mm
- Creep and shrinkage : 28mm
- Elastic shortening : 6mm
- Change in Brg./10° C = 4.6mm

Provide a stainless steel sliding surface with the design movement plus 50 mm in each longitudinal direction.

	Bent 1	Bent 3
Dead Load	650 kN	641 kN
Live Load	283 kN	282 kN
Total Vertical Capacity Req'd.	933 kN	923 kN
Minimum Horizontal Capacity for Guided Bearings	275 kN	275 kN

NOTE: All dimensions are in millimete s (mm) except as noted.

△	DATE	REVISION	BY

DRAFTED: Philip G. Amaya
CHECKED: Thiet Nguyen
REVIEWED: Hormoz Seradj

DESIGNER
REGISTERED PROFESSIONAL ENGINEER 14056 Craig Shike OREGON JULY 26, 1988 CRAIG SHIKE
EXPIRES: 6-30-04

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION

BRIDGE NO. 19592
DATE 19-Mar-2004
CALC. BOOK 5210-5211

JACKSON SCHOOL ROAD OVER HWY 47

BEARING DETAILS

SHEET 20 OF 20
DRAWING NO. 65095

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1:10 - BEARING