

WASHINGTON STREET IMPROVEMENTS & SIGNAL DESIGN Napavine, Washington

H.E.S. PROJECT NO.'S STPH-G210 (002) AND STPH-G210 (003)
T.I.B. PROJECT NO.'S 6-W-963-(104)-1 AND 6-W-963 (105)-1
RAILROAD CROSSING PROJECT NO. STPXP-G210 (004)

INDEX OF DRAWINGS

DWG NO.	SHEET	DESCRIPTION
G1	1	COVER SHEET
G2	2	TYPICAL SECTIONS, GENERAL NOTES, ABBREVIATIONS AND LEGENDS
C1	3	PLAN AND PROFILE STA. 10+00 TO STA. 14+30
C2	4	PLAN AND PROFILE STA. 14+30 TO STA. 18+25
C3	5	SIGNING & STRIPING PLAN, DEMOLITION PLAN
D1	6	GENERAL DETAILS
TS-1	7	TRAFFIC SIGNAL PLAN, WASHINGTON STREET / 2ND AVE E
TS-2	8	WIRING DIAGRAM, WASHINGTON STREET / 2ND AVE E
TS-3	9	TRAFFIC SIGNAL PLAN, WASHINGTON STREET / BRICH AVENUE
TS-4	10	WIRING DIAGRAM, WASHINGTON STREET / BRICH AVE
TS-5	11	ILLUMINATION PLAN
TS-6	12	SIGNAL POLE DETAILS
TS-7	13	TRAFFIC SIGNAL NOTES
TS-8	14	LOOP DETECTION NOTES
TS-9	15	LOOP DETECTION NOTES

Project Directory

City of Napavine

Owner

City of Napavine
Public Works Director

Steve Ashley

P.O. Box 810

214 2nd Avenue NE

Napavine, WA. 98565

Phone No. 360 / 262-9231

Fax No. 360 / 262-9885

Design Team

Civil Engineers

Gibbs & Olson, Inc.

Carol Ruiz, P.E.

John Duncan, P.E.

1405 17th Av. Suite 300

Longview, Washington 98632

Phone No. 360 / 425-0991

Fax No. 360 / 423-3162

Traffic Engineers

Transportation Solutions, Inc.

Bruce Newman, P.E.

8250 165th Avenue NE, Suite 100

Redmond, Washington 98052

Phone No. 425 / 883-4134

Fax No. 425 / 867-0898

Mayor

Gary McGuire

City Council

Jeff Lyon

Eileen Sherlock

John Sayers

Jim Haslett

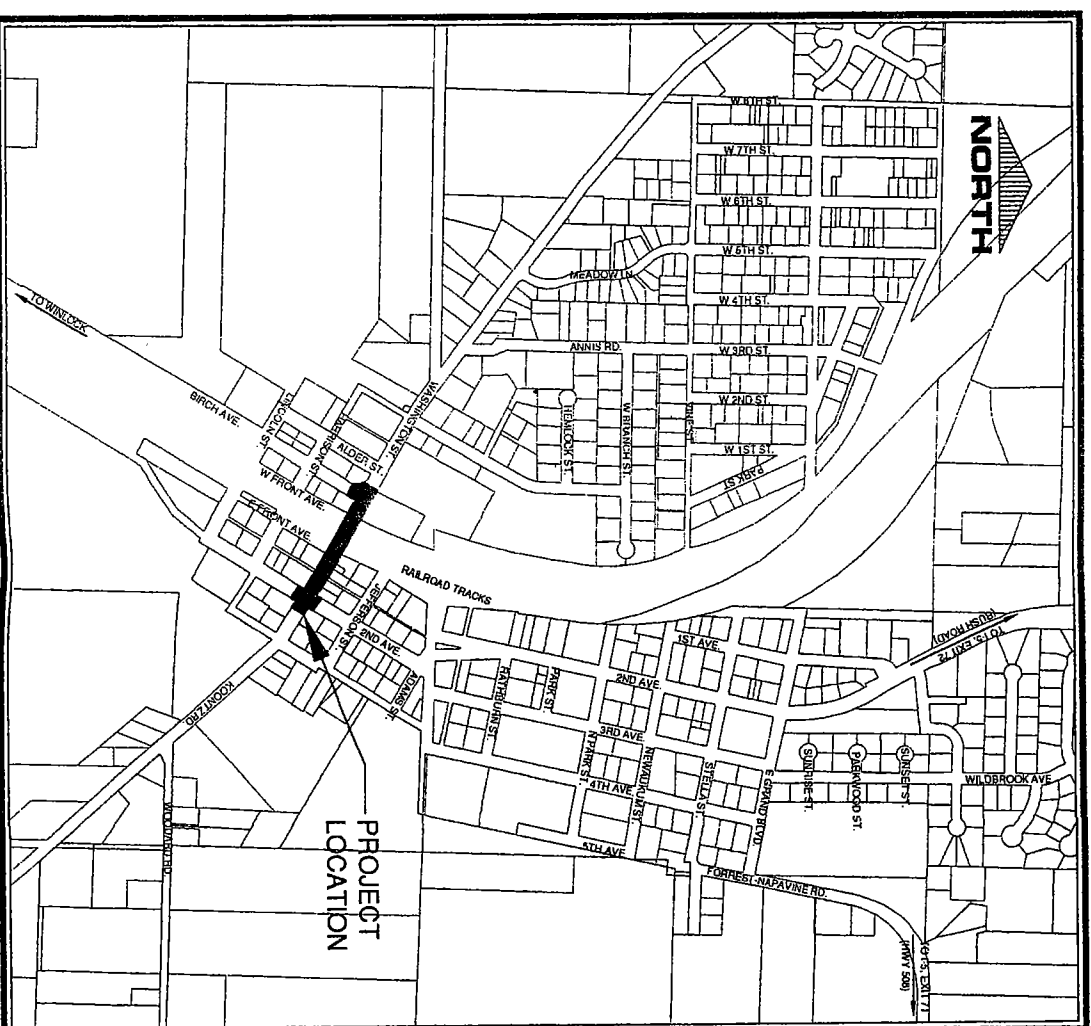
Rob McNelly

City Clerk-Treasurer

LaVerne Haslett

Public Works Director

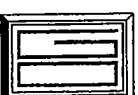
Steve Ashley



Vicinity Map

Scale: 1" = 500'

APPROVED BY CITY OF NAPAVINE	DATE
GARY MCGUIRE, MAYOR	
STEVE ASHLEY, PUBLIC WORKS DIRECTOR	



GIBBS & OLSON INC.
Engineers • Planners • Surveyors
LONGVIEW • OLYMPIA
WASHINGTON

Designed: *[Signature]*
Drawn: *[Signature]*
Checked: *[Signature]*
Approved: *[Signature]*
Date: 1/19/04

H. Scale: AS
V. Scale: SHOWN
Datum:
Survey Book: 1465 - E
Project Directory: 05571307.dwg
AutoCAD File: Project.dwg

City of Napavine

Washington Street Improvements and
Signal Design

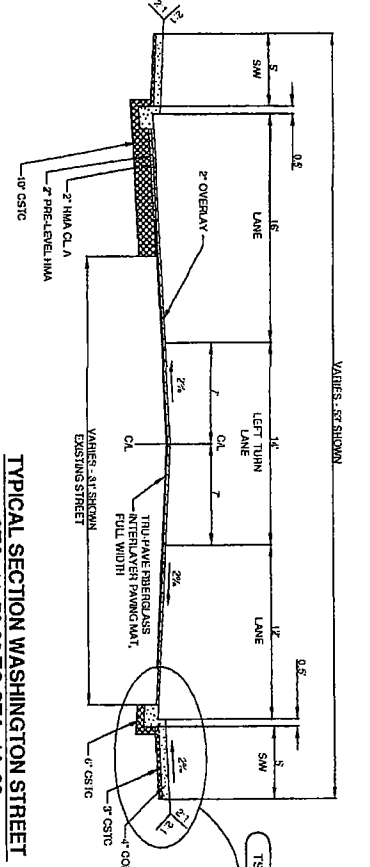
Cover Sheet

Job Number
0557.1307

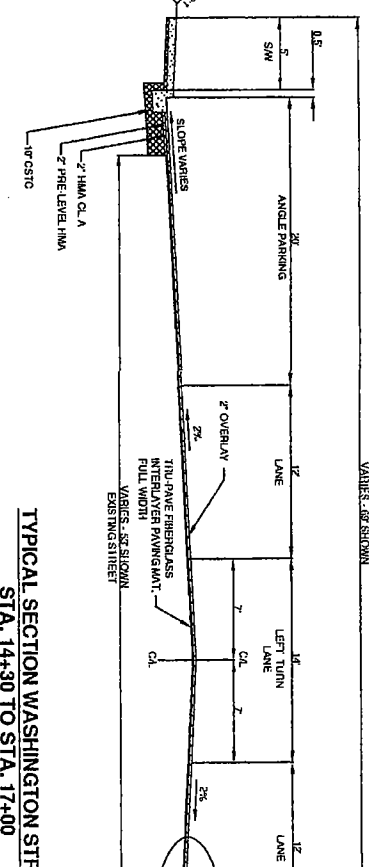
BD Schedule

Drawing Number
G1

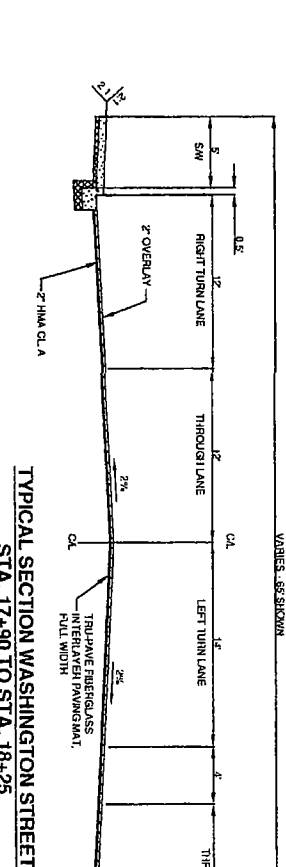
Sheet Number
1 of 15



TYPICAL SECTION WASHINGTON STREET
STA. 11+78.86 TO STA. 14+30
N.T.S.



TYPICAL SECTION WASHINGTON STREET
STA. 14+30 TO STA. 17+00
N.T.S.



TYPICAL SECTION WASHINGTON STREET
STA. 17+00 TO STA. 18+25
N.T.S.

TS-1 LOCATION OF SIDEWALK BEHIND CURB VARIES BOTH SIDES. REFER TO PLAN SHEETS FOR LOCATIONS AND ELEVATIONS.

General Notes

1. Location of Existing Utilities are Approximate. Contractor to Probe and Vary Top of Storm Main Elevation Prior to Any Storm Drain Construction.
2. Prior to Beginning any Underground Work, Contractor to Find Vary Horizontal Location and Depth of Existing Utilities Where There are Potential Conflicts with New Construction.
3. Street to Remain Accessible at All Times.

SURVEY CONTROL TABLE

POINT NUMBER	STATION	STREET	NORTHING	EASTING	ELEVATION
CP-1	11+47.72 22.99 LT.	WASHINGTON	4987.3170	4094.5864	445.22
CP-2	14+78.95 41.92 LT.	WASHINGTON	4723.7402	4318.6137	443.53
CP-3	17+60.51 37.11 LT.	WASHINGTON	4502.0574	4512.9731	444.54

MONUMENTATION TABLE

POINT NUMBER	STATION	STREET	NORTHING	EASTING	ELEVATION		
MN-1	17+45.13 17.77 LT.	WASHINGTON	60401.90	0.927 RT.	2ND	4498.5395	4483.0577

Construction Notes

- (A) Pedestrian Ramp Type 2A.
- (B) Pedestrian Ramp Type 4B. See Detail in Specifications.
- (C) Asphalt Pedestrian Ramp.
- (AB) Adjust Rim by Adding or Removing Flings and Set to New Grade.
- (AV) Adjust Valve to New Grade.
- (DS) Remove and Dispose of Existing Culvert.
- (DS) Remove and Dispose of Existing Sidewalk.
- (IM) Install Monument Case and Cover at Center of R.O.W.
- (PV) Probe and Verify Existing Utility Prior to Construction.
- (RA) Relocate Existing Pole Anchor.
- (RP) Fire Hydrant to be Relocated Behind Sidewalk.
- (RL) Relocate Existing Light Behind Sidewalk.
- (RM) Water Meter to be Relocated behind sidewalk by City of Napavine.
- (RP) Utility Pole to be Relocated Behind Sidewalk.
- (RS) Relocate Existing Sign.
- (RT) Telephone Co. Appearance shall be Relocated Behind Sidewalk by Onest.

Abbreviations

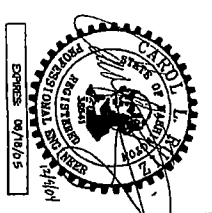
A	Delta	MATL	Material
AC	Asphalt Concrete	MAX	Maximum
ADJ	Adjustable	MH	Manhole
ANG. PT.	Angle Point	MIN	Minimum
APPROX.	Approximate	MJ	Mechanical Joint
AVE	Avenue	N.T.S.	Not to Scale
BLDG	Building	(N)	North
BLVD	Boulevard	(NE)	Northeast
BNSF	Burlington Northern-Santa Fe	(NW)	Northwest
BOV	Back of Sidewalk	PC	Point of Curvature
BVC	Begin Vertical Curve Elevation	PINC	Point of Intersection, No Curve
BVCS	Begin Vertical Curve Station	PL	Property Line
BVC	Begin Vertical Curve	PLCS	Placer
CB	Catch Basin	PT	Point of Tangency
CDP	Control Density Fill	PVC	Point of Vertical Intersection
CE	Centerline	PWAT	Pavement
CL	Class Out	P.E.	Professional Engineer
CL	Centerline	R	Radius
CONSTR.	Construction	R.D.	Road
CONTR.	Contractor	REQD	Required
CSBS	Guarded Surfacing Base Course	RT	Right
CSTC	Guarded Surfacing Top Course	R/W	Right of Way
D.WY	Divergency	S	Slope
D.L.	Ductile Iron	SOCB	Storm Drain Catch Basin
D.L.	Diameter	SDMH	Storm Drain Manhole
D.W(S)	Daylight Earthwork	SHLD	Shoulder
EG	Existing Grade	SS	Sanitary Sewer
ELEV.	Elevation	SSMH	Sanitary Sewer Manhole
EOP	Edge of Pavement	ST	Street
EVC	End Vertical Curve Elevation	STA	Station
EVC	End Vertical Curve	STD	Standard
EVCS	End Vertical Curve Station	SW	Sidewalk
EXST.	Existing	(S)	South
EXT.	Extension	(SE)	Southeast
(E)	East	(SW)	Southwest
FG	Finish Grade @ Centerline	THRU	Through
FG	Finish Grade - Left	TRANS.	Transition
FL	Finish Grade - Right	TRNS.	Transition
FLG	Finish Line	VAR.	Varies
FLG	Finish Line	VC	Vertical Curve
FLG	Finish Line	W	Width
FLG	Finish Line	WSDOT	Washington State Department of Transportation
FLG	Finish Line	(W)	West
FLG	Finish Line	(NW)	Northwest
FLG	Finish Line	@	At
FLG	Finish Line	AI	And
FLG	Finish Line	LT	Left
FLG	Finish Line	L.F.	Lineal Foot

EXISTING LINETYPES & SYMBOLS

Building	Street Light
Castaline Road	Guard Posts
Concrete	Hydrants 3-Foot
Cree/Ditch	Water Meters
Curb	Gate Valves
Gavel	Sign
Gutter Line	Deciduous Tree
Pavement Edge	Shrub
Relined	Power Pole
Relining Wall	Power Pole Anchor
Sanitary Sewer - Gravity	Sewer Manhole
Storm Drain - Gravity	Storm Manhole
Top of Slope	Storm Manhole
Top of Slope	Storm Manhole
Water - Pressure	Telephone Pole
	Telephone Pole Anchor
	Telephone Riser

PROPOSED LINETYPES & SYMBOLS

Centerline	Type 1 Storm Drain Catch Basin
Essament - Traffic Signal	Junction Box
Lane Striping	Sign
Parking Lot	Street Light
Storm Drain	Left Turn - Straight Arrow
Electrical Conduit	Left Turn Arrow
4" Thick Cement Concrete Sidewalk	Left Turn Arrow
6" Thick Cement Concrete Driveway Approach	Right Turn - Straight Arrow
2" Asphalt Overlay Existing Asphalt Road Surface	Right Turn Arrow
6" Concrete Driveway With	Right Turn - Straight Arrow
A = 2" Asphalt Concrete Approach C.A	Straight Arrow
C = 6" Cement Concrete Approach	Two Way Left Turn Arrow
Back of Sidewalk	
Curb & Gutter	
Pedestrian Ramp, Type 2A with Ductable Wiring	
Asphalt Pedestrian Ramp	
Demolition Limits	
New Road Section	
Grading Limits	
Stamped & Colored Concrete	



GIBBS & OLSON INC.
Engineers • Planners • Surveyors
LONGVIEW • OLYMPIA
WASHINGTON

Job Number: 0557.1307
Bid Schedule

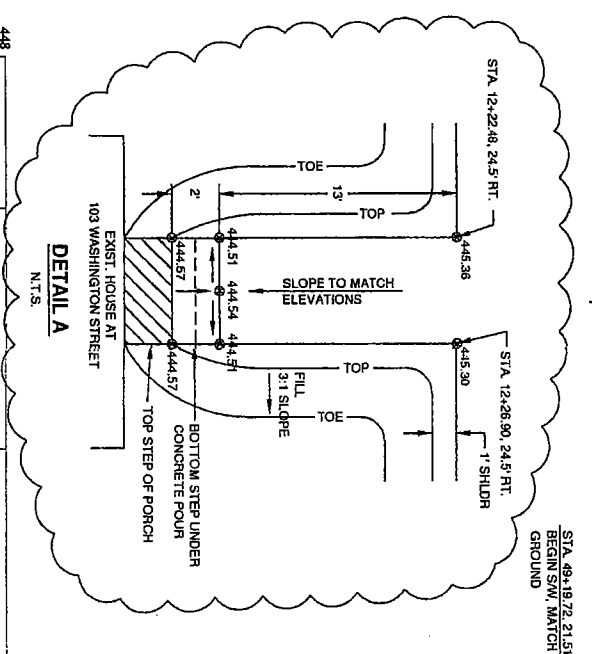
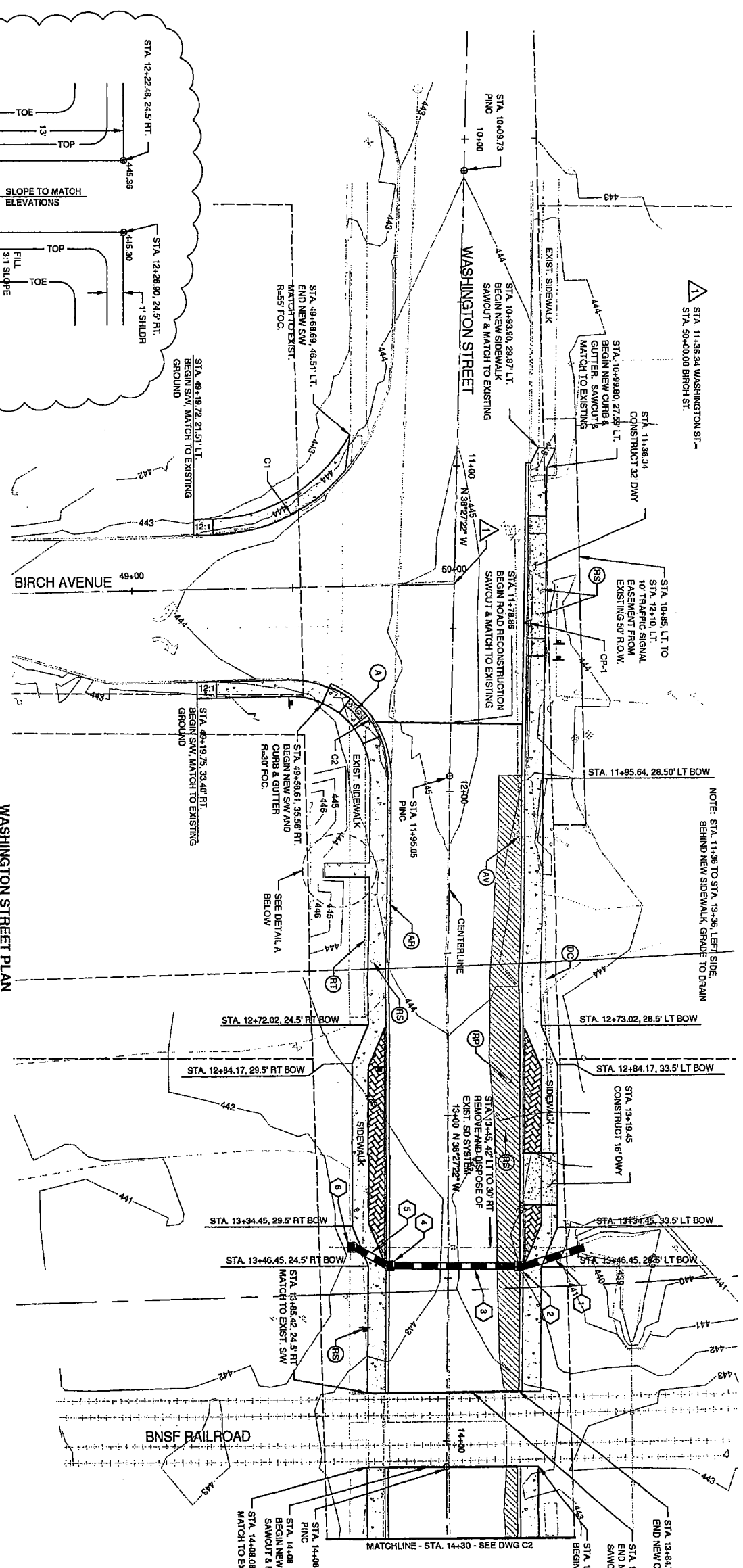
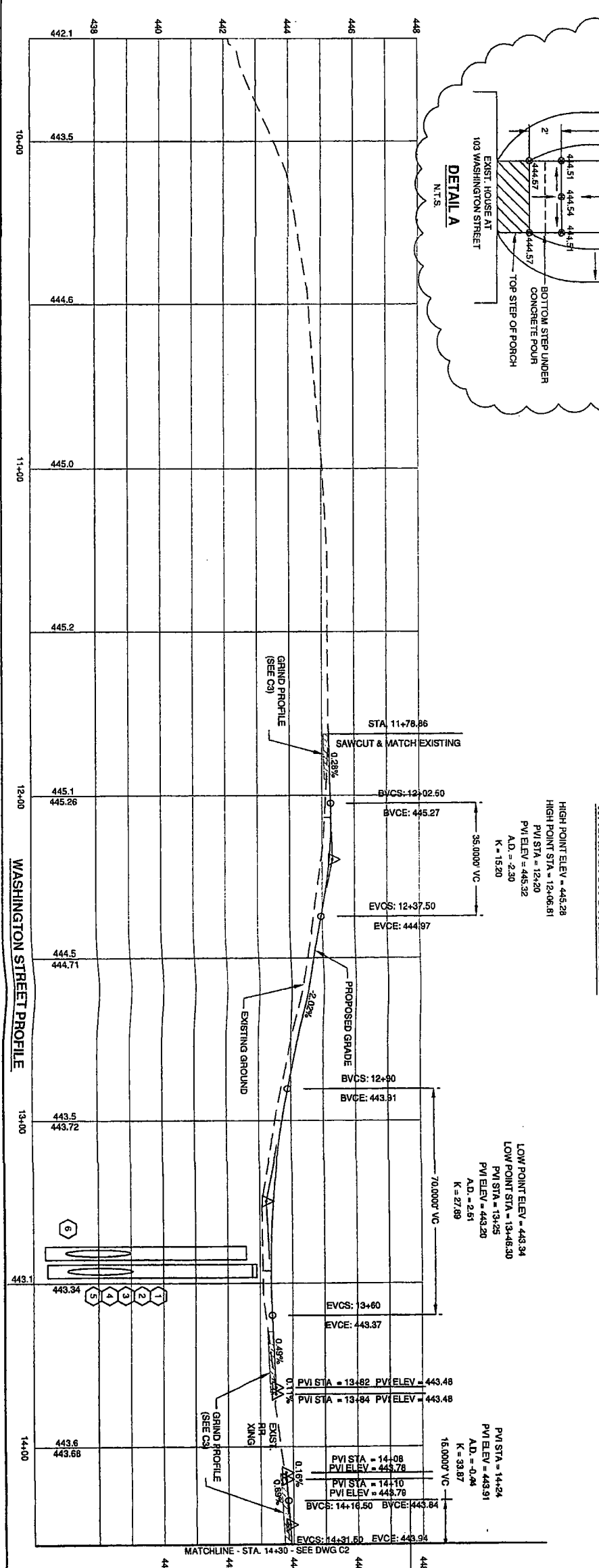
Drawing Number: G2
Sheet Number: 2 of 15

Designed: DFY
Checked: DFY
Approved: DFY
Date: 12/9/04

H.Scale: AS
V.Scale: SHOWN
Datum:
Survey Books: 1485-E
Project Directory: 05571307.dwg
AutoCAD: G2.dwg
Project.dwg

City of Napavine
Washington Street Improvements and
Signal Design

Typical Sections, General Notes,
Abbreviations and Legends



HIGH POINT ELEV = 445.28
 HIGH POINT STA = 12+20
 PVI STA = 12+20
 PVI ELEV = 445.32
 A.D. = -2.30
 K = 1520

LOW POINT ELEV = 443.34
 LOW POINT STA = 13+84
 PVI STA = 13+84
 PVI ELEV = 443.48
 A.D. = -2.51
 K = 2789

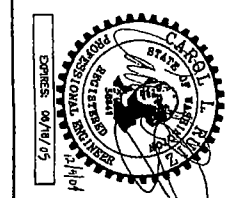
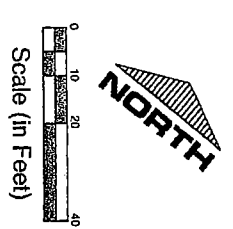
CURVE TABLE

CURVE	ALIGNMENT	STATION	OFF-SET	DELTA	LENGTH	RADIUS
C1	WASHINGTON	10+48.66	77.37	141°	47.54	55.00
C2	WASHINGTON	11+95.64	48.00	117°	91.57	48.15
						30.00

* FACE OF CURB

NOTE:
 CONTRACTOR TO VERIFY EXISTING INVERT ELEVATION OUT PRIOR TO LAYING ANY PIPE.

NUMBER	DESCRIPTION
1	21 L.F. OF 24" S.D. PIPE @ S=0.005 LE (IN)=67.36
2	STA 13+46.62, 21.76' LT. INSTALL TYPE 2 SDCB GRATE=442.76 LE (IN)=97.25 (24" IN) LE (OUT)=67.25 (24" IN)
3	40 L.F. OF 24" S.D. PIPE @ S=0.005 STA 13+46.31, 17.75' RT. INSTALL TYPE 2 SDCB GRATE=442.89 LE (IN)=97.05 (24" IN) LE (OUT)=67.05 (24" IN)
4	19 L.F. OF 24" S.D. PIPE @ S=0.005 STA 13+40.80, 23.75' RT. INSTALL TYPE 2 SDCB GRATE=442.89 LE (IN)=65.58 (24" IN) LE (OUT)=MACH EXIST.
5	STA 13+40.80, 23.75' RT. INSTALL TYPE 2 SDCB GRATE=442.89 LE (IN)=65.58 (24" IN) LE (OUT)=MACH EXIST.
6	STA 13+40.80, 23.75' RT. INSTALL TYPE 2 SDCB GRATE=442.89 LE (IN)=65.58 (24" IN) LE (OUT)=MACH EXIST.



GIBBS & OLSON INC.
 Engineers • Planners • Surveyors
 LONGVIEW • OLYMPIA
 WASHINGTON

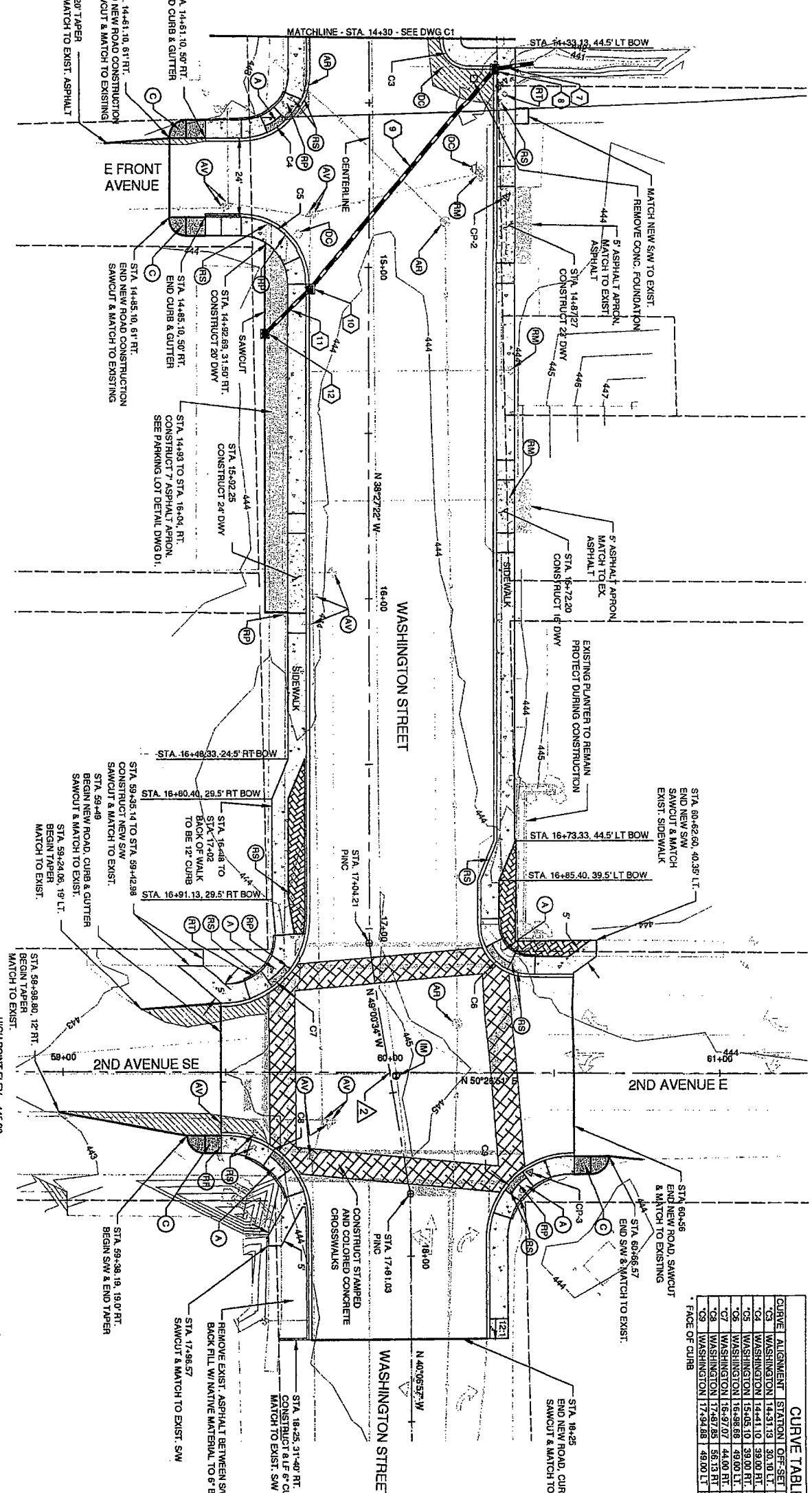
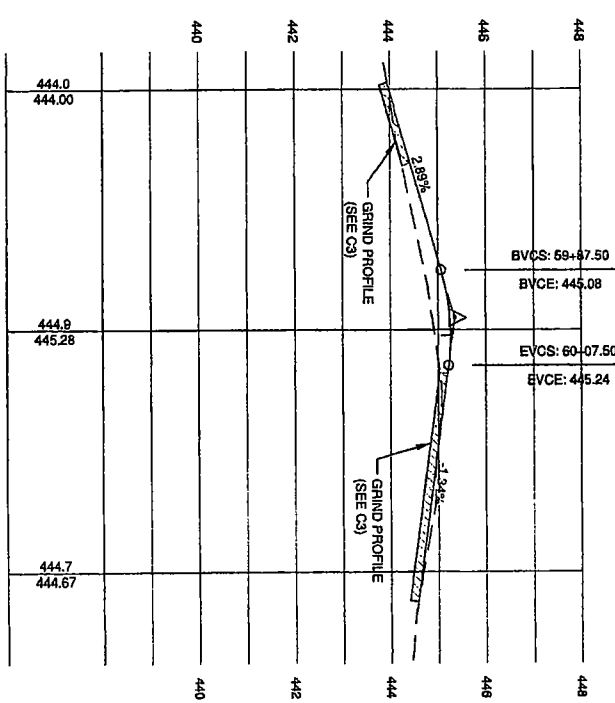
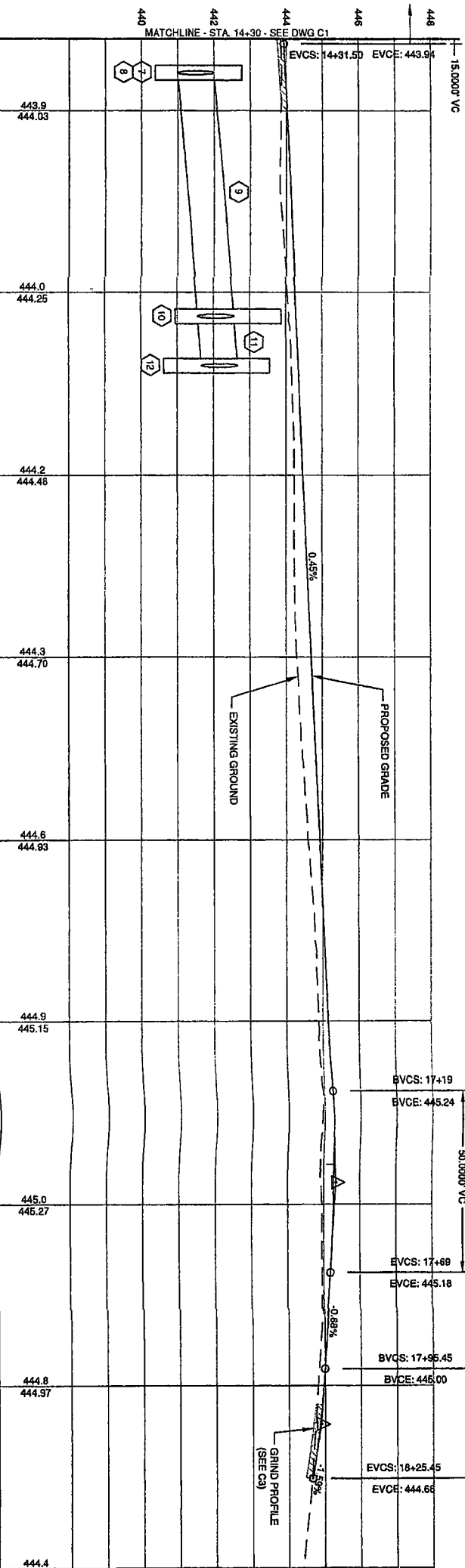
Job Number: 0557.1307
 Drawing Number: C1
 Sheet Number: 3 of 15

Designed: DDF
 Drawn: DDF
 Checked: JDF
 Approved: JDF
 Date: 12/1/04

H. Scale: 1"=20'
 V. Scale: 1"=2'
 Datum:
 Survey Books: 1465-E
 Project File: 05571307.ctb
 AutoCAD File: Project.dwg

City of Napavine
 Washington Street Improvements and
 Signal Design

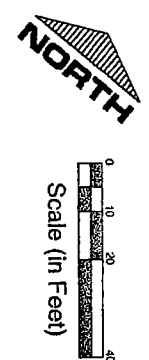
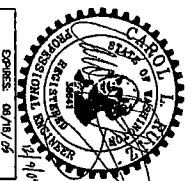
Plan and Profile
 Sta. 10+00 to Sta. 14+30



CURVE TABLE

CURVE ALIGNMENT	STATION	OFF-SET	DEL. TA.	LENGTH	RADIUS
WASHINGTON	14+31.50	30.00 FT	90°00'00"	11.78	7.50
WASHINGTON	14+41.10	39.00 FT	90°00'00"	31.42	20.00
WASHINGTON	15+05.10	39.00 FT	90°00'00"	31.42	20.00
WASHINGTON	15+56.68	49.00 FT	69°32'31"	24.46	15.00
WASHINGTON	16+97.07	44.00 FT	90°22'29"	39.43	25.00
WASHINGTON	17+47.25	56.13 FT	89°28'12"	39.02	25.00
WASHINGTON	17+94.88	49.00 FT	90°33'48"	35.52	25.00

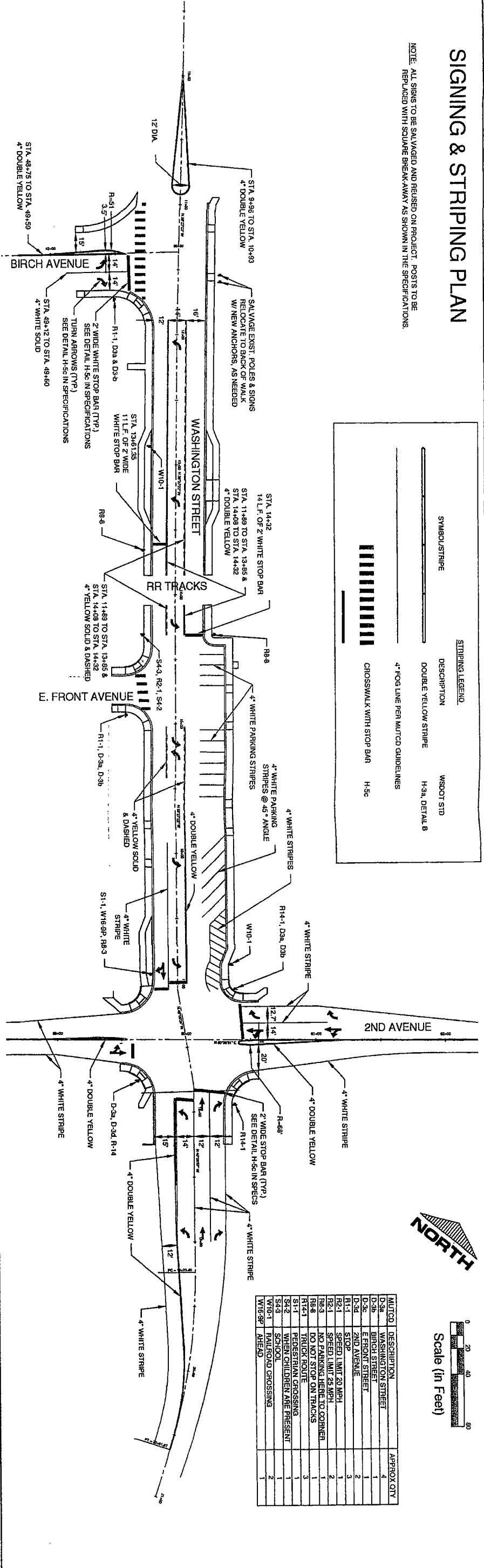
NUMBER	DESCRIPTION
7	12 LF. OF 12" CL 52 DI PIPE @ S4.0/05
8	STA. 14+39.55, 38.29' LT. INSTALL TYPE 1 SDCB GRATE-44277 LE (IN)=41.13 (12")/S LE (OUT)=41.00 (12")/NE
9	87 LF. OF 12" CL 52 DI PIPE @ S4.0/05
10	STA. 16+06.52, 17.79' RT. INSTALL TYPE 1 SDCB GRATE-44387 LE (IN)=41.57 (12")/S LE (OUT)=41.57 (12")/M
11	19 LF. OF 12" CL 52 DI PIPE @ S4.0/05
12	STA. 15+20.00, 31.50' RT. INSTALL TYPE 1 SDCB GRATE-44355 MIN. LE (OUT)=41.67 (12")/M



SIGNING & STRIPING PLAN

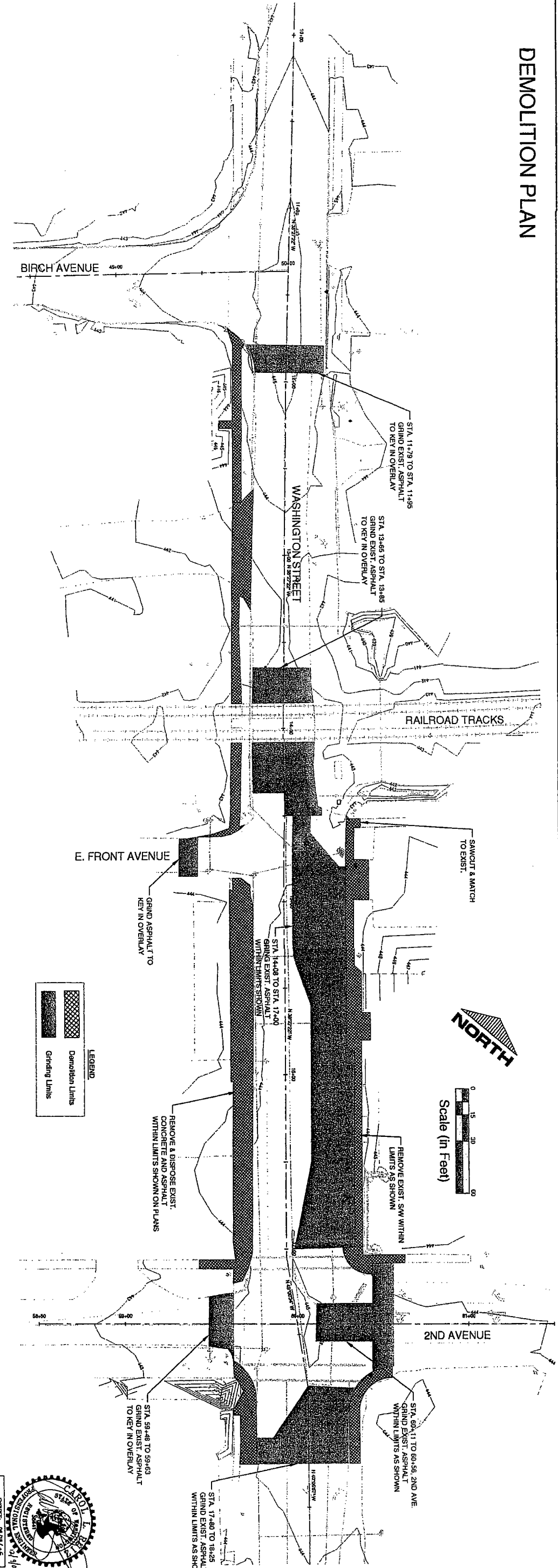
NOTE: ALL SIGNS TO BE SALVAGED AND REUSED ON PROJECT. POSTS TO BE REPLACED WITH SQUARE BREAK-AWAY AS SHOWN IN THE SPECIFICATIONS.

STRIPING LEGEND		
SYMBOL/STRIPING	DESCRIPTION	WSDOT STD
	DOUBLE YELLOW STRIPE	H-3a, DETAIL B
	4" FOG LINE PER MUTCD GUIDELINES	
	CROSSWALK WITH STOP BAR	H-5c



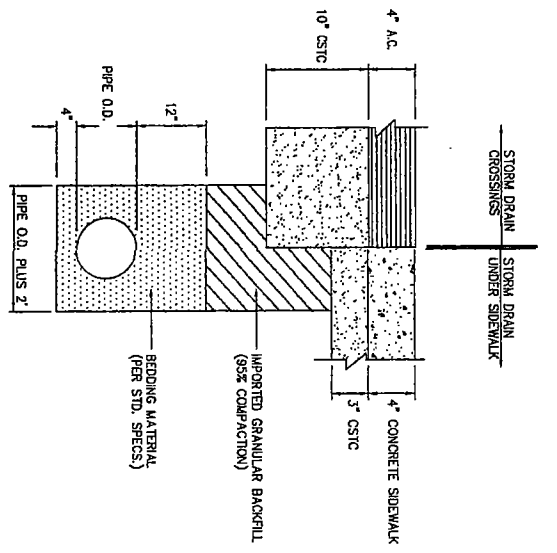
MUTCD	DESCRIPTION	APPROX. QTY
D-3a	WASHINGTON STREET	4
D-3b	BIRCH STREET	1
D-3c	E. FRONT STREET	2
D-3d	2ND AVENUE	2
R1-1	STOP	3
R2-1	SPEED LIMIT 20 MPH	1
R2-2	SPEED LIMIT 25 MPH	2
R2-3	NO PARKING HERE TO CORNER	1
R2-4	DO NOT STOP ON TRACKS	3
R14-1	TRUCK ROUTE	1
S1-1	PEDESTRIAN CROSSING	1
S4-2	WHEN CHILDREN ARE PRESENT	1
S4-3	SCHOOL	1
W10-1	RAILROAD CROSSING AHEAD	2
W10-9P	RAILROAD CROSSING AHEAD	1

DEMOLITION PLAN

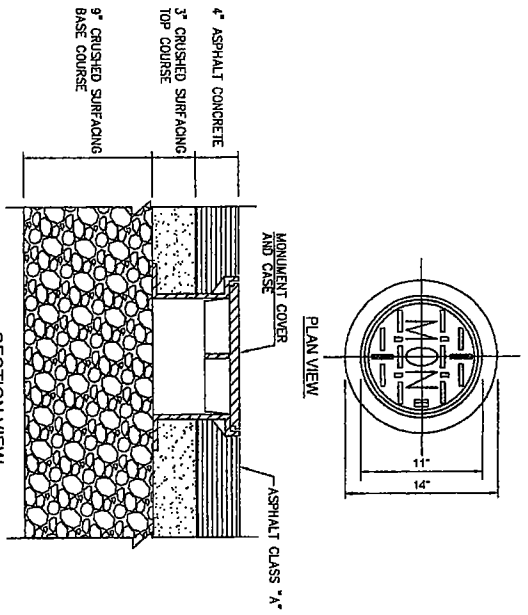


LEGEND	
	Demolition Limits
	Grinding Limits





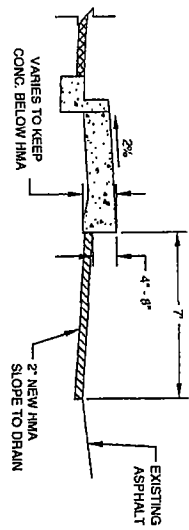
TYPICAL TRENCH SECTION
N.T.S.



NOTES:

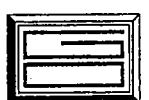
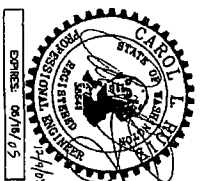
- CASTINGS FOR MONUMENT CASES, COVERS, AND RISERS SHALL BE GRAY IRON CASTINGS CONFORMING TO THE REQUIREMENTS OF ASTM A 193, CLASS 30B, AS MANUFACTURED BY OLYMPIC FOUNDRY PART NO. M1010.

MONUMENT CASE DETAIL
N.T.S.



PARKING LOT DETAIL

STA. 14+93 TO STA. 16+04, RT.
N.T.S.



GIBBS & OLSON INC.
Engineers • Planners • Surveyors
LONGVIEW • OLYMPIA
WASHINGTON

Designed: *DF*
Drawn: *DF*
Checked: *DF*
Approved: *DF*
Date: *12/2/04*

H. Scale: AS
V. Scale: SHOWN
Datum:
Survey Books: 1465-E
Project Directory: 05571307.act
AutoCAD File: Project.dwg

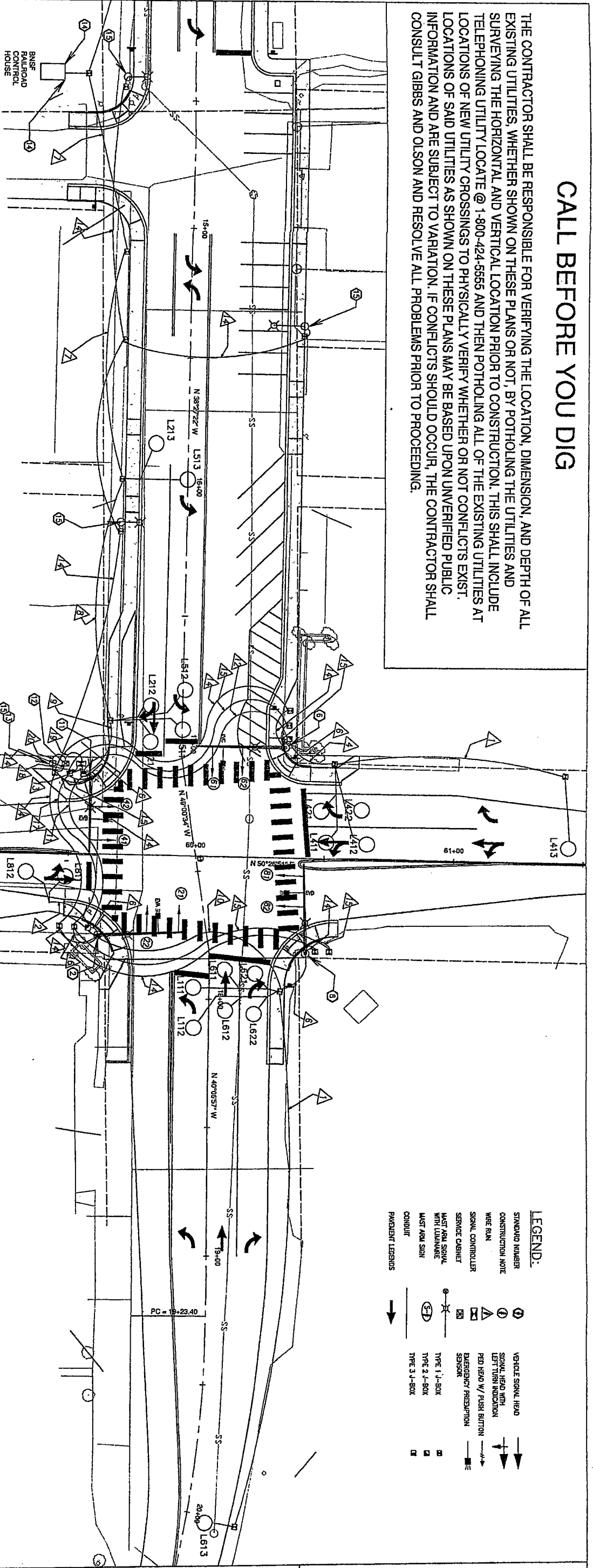
City of Napavine
Washington Street Improvements and
Signal Design

General Details

Job Number: 05571307
Bid Schedule: Bid Schedule
Drawing Number: D1
Sheet Number: 6 of 15

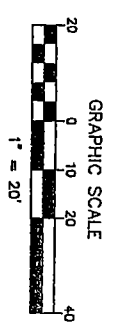
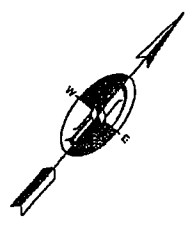
CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THESE PLANS OR NOT, BY POT-HOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE TELEPHONING UTILITY LOCATE @ 1-800-424-5555 AND THEN POT-HOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. INFORMATION OF SAID UTILITIES AS SHOWN ON THESE PLANS MAY BE BASED UPON UNVERIFIED PUBLIC CONSULTANTS GIBBS AND OLSON AND RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING.



WIRING SCHEDULE

RUN NO.	SERVICE (#2)	POWER (#6)	GROUND (#8)	ILLUM. (#8)	LOOP PAIRS (2CS-#14)	PED PUSH BUT. (2CS-#14)	EMERG. PRE-EMPT (3CS-#20)	VEH./PED HEADS (5C)	VEHICLE HEADS (7C)	INTERCONNECT 6PR PE39 (#20)	DIAMETER, INCHES
1			1	1	1						2"
2			1	1	3						2"
3			1	1	5						2"
4			1	1	2						2"
5			1	1	2						2"
6			1	1	2						2"
7			1	1	2						2"
8			1	1	2						2"
9			1	1	6						2"
10			1	1	7						3"
11			1	1	10						3"
12			1	1	5						2"
13A			1	1	2						3"
13B			1	1	15						3"
13C			1	1	6					1	3"
14			1	2							3"
15			1	1							2"
16			1	1							2"
17			1	1							2"
18			1	1							3"
19			1	1							3"
20			2	1							2"

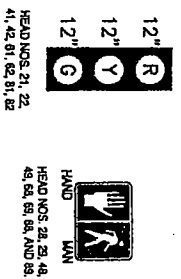


LEGEND:

- ① STANDARD NUMBER
- ② CONSTRUCTION NOTE
- ③ WIRE RUN
- ④ SIGNAL CONTROLLER
- ⑤ SERVICE CABINET
- ⑥ MASTER SIGNAL WITH LUMINAIRE
- ⑦ MASTER ARM SIGN
- ⑧ CONDUIT
- ⑨ PAYMENT LEGISLUS
- ⑩ VEHICLE SIGNAL HEAD
- ⑪ SIGNAL HEAD WITH LEFT TURN INDICATOR
- ⑫ PED HEAD W/ PUSH BUTTON
- ⑬ EMERGENCY PREPARATION SENSOR
- ⑭ TYPE 1 1-BOX
- ⑮ TYPE 2 1-BOX
- ⑯ TYPE 3 1-BOX

SIGNAL HEAD DISPLAYS

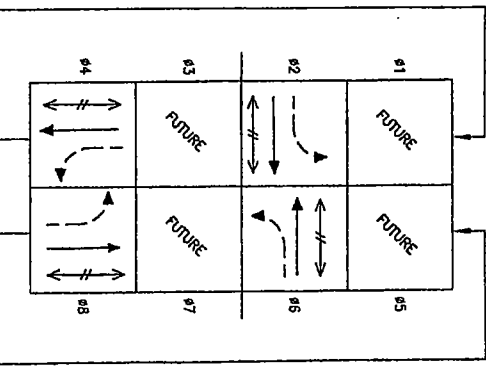
ALL DISPLAYS SHALL BE LIGHT-EMITTING DIODES (LED)



EMERGENCY VEHICLE PRE-EMPTION SCHEDULE

CHANNEL	PHASE
A	2
B	4
C	6
D	8

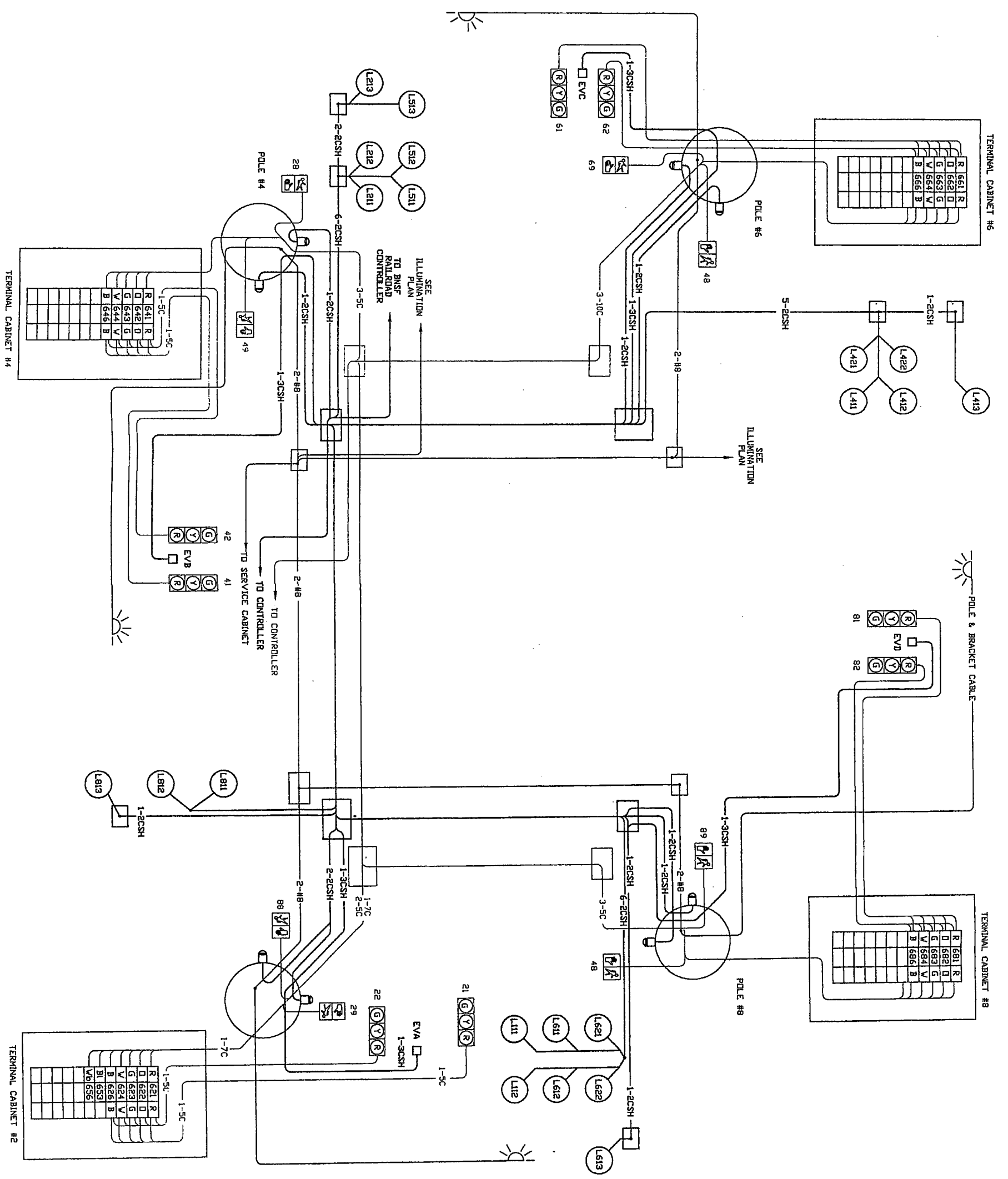
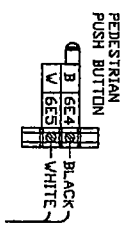
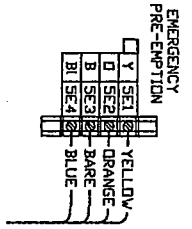
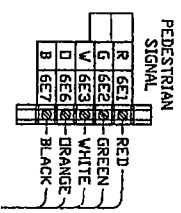
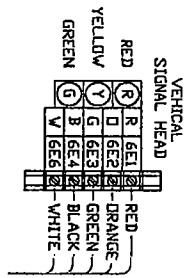
PHASE SEQUENCE DIAGRAM



City of Napavine
Washington Street Improvements
Napavine, Washington

TRAFFIC SIGNAL PLAN
WASHINGTON STREET / 2ND AVE E

		Transportation Solutions, Inc. 8250 - 155th Avenue NE, Suite 100 Redmond WA 98052-6628 T (425) 883-4134 F (425) 867-0898 www.tsiwa.com	Designed: TSI Drawn: RJH Checked: BRN Approved: BRN Date: 09/14/04	H.Scale: 1/20 V.Scale: N/A Datum: PER G&D Survey Books: 08/08/04 Project Directory: 204022 AutoCAD File: 204022-A
			Job Number: 204022 Bid Schedule: 001 Drawing Number: TS-1 Sheet Number: 7 of 15	



WIRING DIAGRAM
WASHINGTON STREET / 2ND AVE E

City of Napavine
Washington Street Improvements
Napavine, Washington

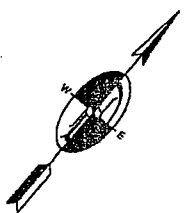
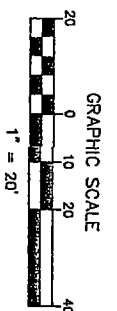
H.Scale: N/A
V.Scale: N/A
Datum: PER C&D
Survey Book: 08/06/D4
Project Director: 204022
AutoCAD File: 204022-A
Date: 09/14/2004

Transportation Solutions, Inc.
8250 - 165th Avenue NE, Suite 100
Redmond WA 98052-6628
T (425) 883-4134
F (425) 867-0898
www.tsiinc.com

TSI
TRANSPORTATION SOLUTIONS, INC.
ENGINEER

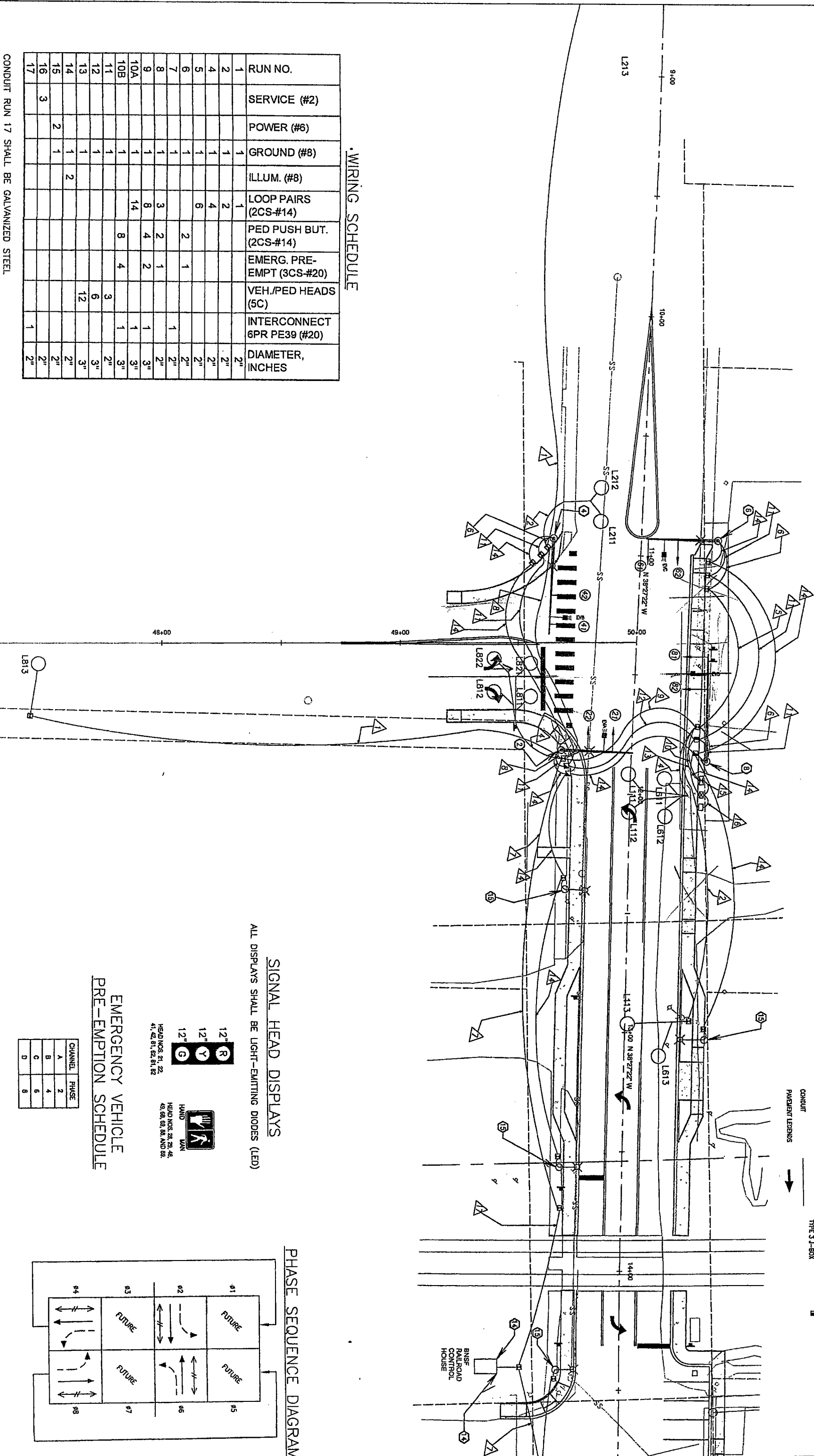
Job Number: 204022
Bid Schedule: 001
Drawing Number: TS-2
Sheet Number: 8 of 15

Expires MAY 9, 2005



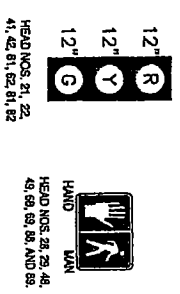
RUN NO.	SERVICE (#2)	POWER (#6)	GROUND (#8)	ILLUM. (#8)	LOOP PAIRS (2CS-#14)	PED PUSH BUT. (2CS-#14)	EMERG. PRE-EMPT (3CS-#20)	VEH./PED HEADS (5C)	INTERCONNECT 6PR PE39 (#20)	DIAMETER, INCHES
1			1	1	1					2"
2			1	1	2					2"
4			1	1	4					2"
5			1	1	6					2"
6			1	1	2					2"
7			1	1	1					2"
8			1	1	3	2	1			2"
9			1	1	8	4	2			3"
10A			1	1	14	2				3"
10B			1	1		8	4			3"
11			1	1			3			2"
12			1	1			6			3"
13			1	1			12			3"
14			1	2						2"
15		2	1	1						2"
16		3	1	1						2"
17										2"

WIRING SCHEDULE



- LEGEND:**
- ① STANDARD SIGNAL HEAD
 - ② SIGNAL HEAD WITH LEFT TURN INDICATION
 - ③ PED HEAD W/ PUSH BUTTON
 - ④ EMERGENCY PREEMPTION SENSOR
 - ⑤ TYPE 1 J-BOX
 - ⑥ TYPE 2 J-BOX
 - ⑦ TYPE 3 J-BOX
 - ⑧ VEHICLE SIGNAL HEAD
 - ⑨ SIGNAL HEAD WITH LEFT TURN INDICATION
 - ⑩ PED HEAD W/ PUSH BUTTON
 - ⑪ EMERGENCY PREEMPTION SENSOR
 - ⑫ TYPE 1 J-BOX
 - ⑬ TYPE 2 J-BOX
 - ⑭ TYPE 3 J-BOX
 - ⑮ WIRE RUN
 - ⑯ SIGNAL CONTROLLER
 - ⑰ SERVICE CABINET
 - ⑱ WAST ARM SIGNAL WITH LUMINAIRE
 - ⑲ WAST ARM SIGN
 - ⑳ CONDUIT
 - ㉑ PAVEMENT LEGENDS

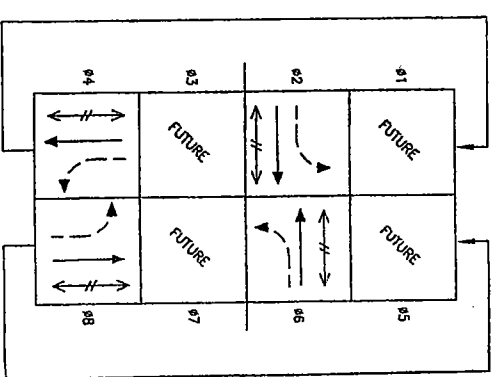
SIGNAL HEAD DISPLAYS
ALL DISPLAYS SHALL BE LIGHT-EMITTING DIODES (LED)

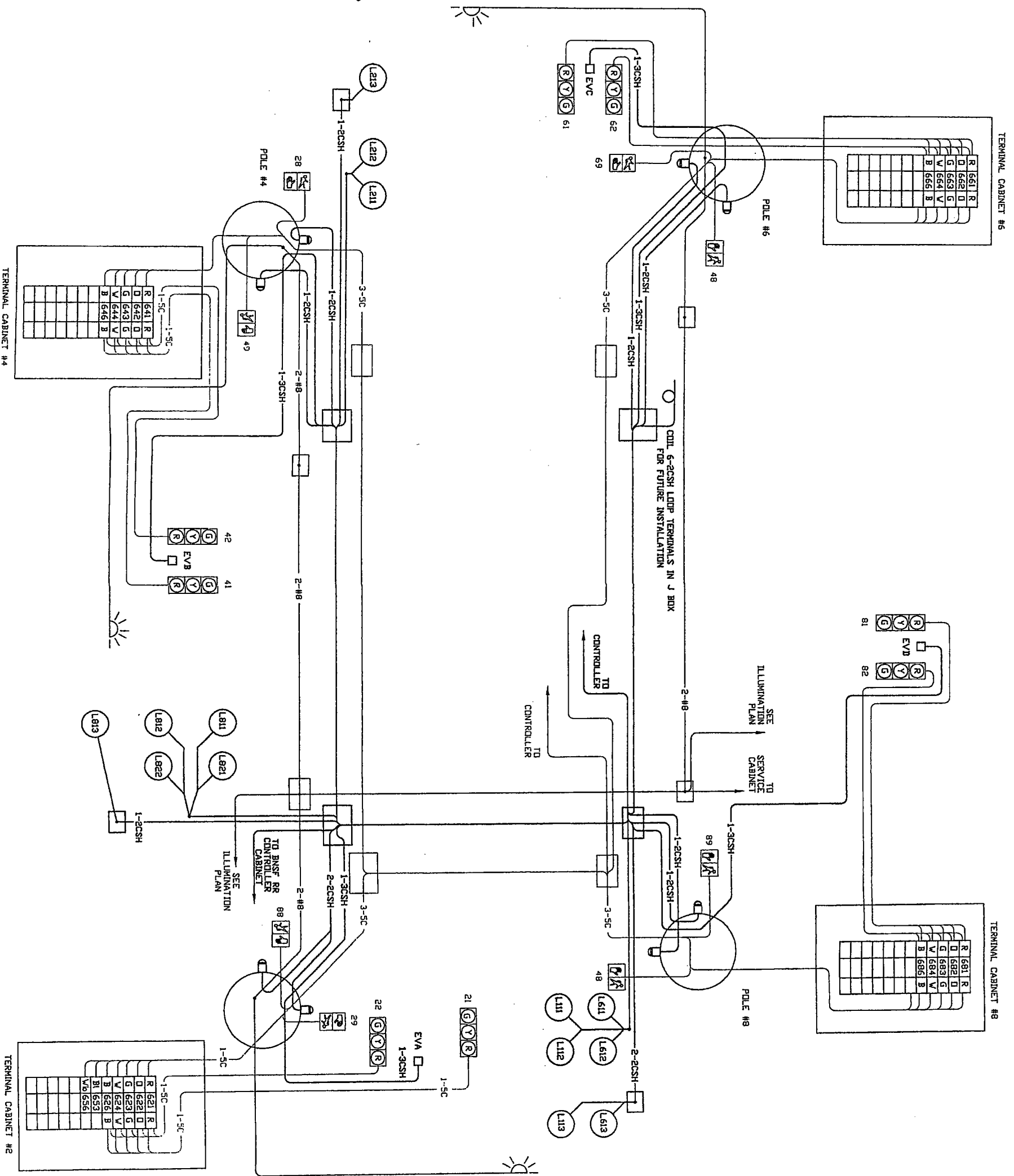
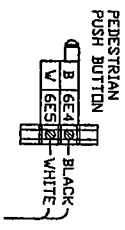
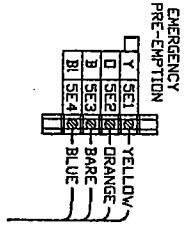
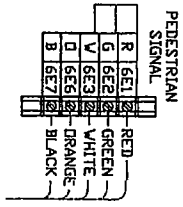
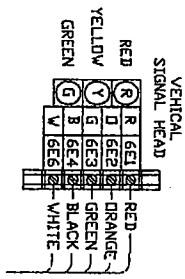


EMERGENCY VEHICLE
PRE-EMPTION SCHEDULE

CHANNEL	PHASE
A	2
B	4
C	6
D	8

PHASE SEQUENCE DIAGRAM



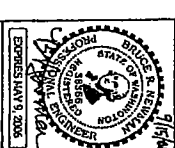


WIRING DIAGRAM
WASHINGTON STREET / BIRCH AVE

City of Napavine
Washington Street Improvements
Napavine, Washington

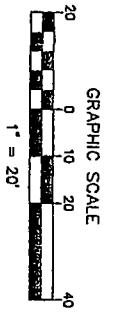
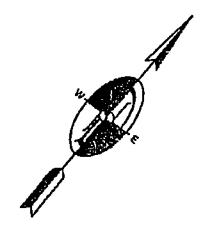
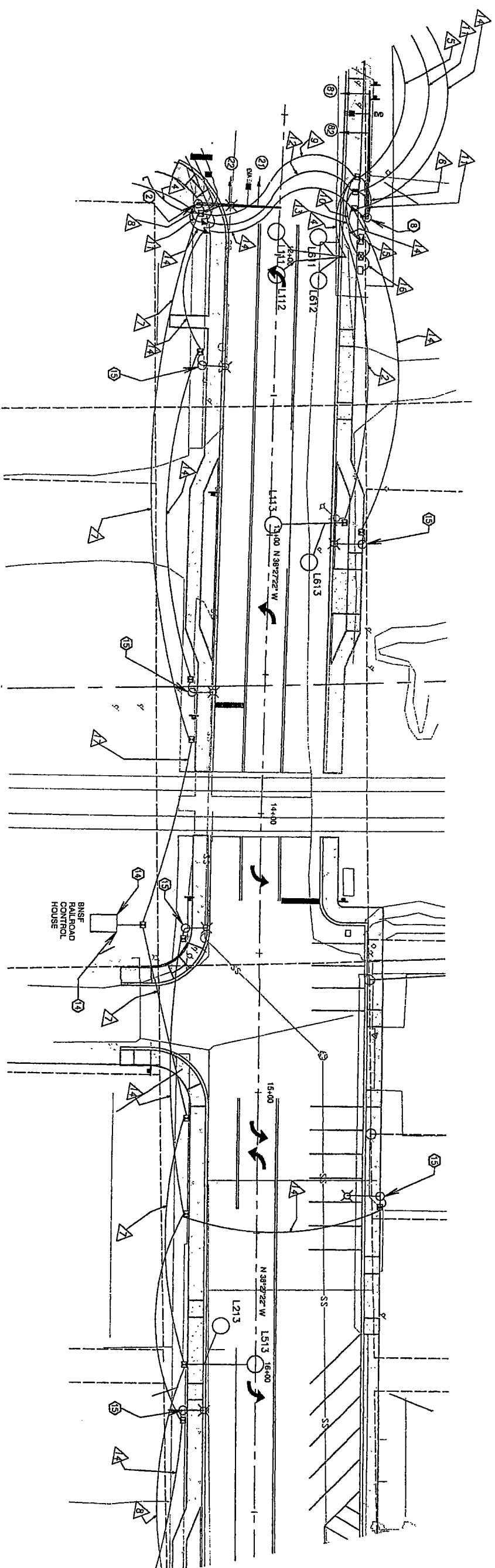
Designed: TSI
Drawn: R.H.
Checked: BRN
Approved: BRN
Date: 09/14/04

Transportation Solutions, Inc.
8250 - 165th Avenue NE, Suite 100
Redmond, WA 98052-6628
1 (425) 882-4134
F (425) 887-8938
www.tsim.com



Job Number: 204022
Bid Schedule: 001

Drawing Number: TS-4
Sheet Number: 10 of 15



LUMINAIRE SCHEDULE

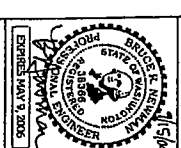
POLE NO.	CIRCUIT	STATION	OFFSET	TYPE, DISTRIBUTION, AND WATTAGE	MAST ARM LENGTH	MOUNTING HEIGHT
1	BIRCH	12+40.1	26.3 R	III-MED. CUTOFF-200 W HIGH-PRESSURE SODIUM	10'	20'
2	BIRCH	13+02.7	33.3 L	III-MED. CUTOFF-200 W HIGH-PRESSURE SODIUM	10'	20'
3	BIRCH	13+53.1	26.4 R	III-MED. CUTOFF-200 W HIGH-PRESSURE SODIUM	10'	20'
4	2ND	14+41.3	26.7 R	III-MED. CUTOFF-200 W HIGH-PRESSURE SODIUM	10'	20'
5	2ND	15+36.6	44.5 L	III-MED. CUTOFF-200 W HIGH-PRESSURE SODIUM	10'	20'
6	2ND	16+16.9	26.1 R	III-MED. CUTOFF-200 W HIGH-PRESSURE SODIUM	10'	20'

ILLUMINATION PLAN

City of Napavine
 Washington Street Improvements
 Napavine, Washington

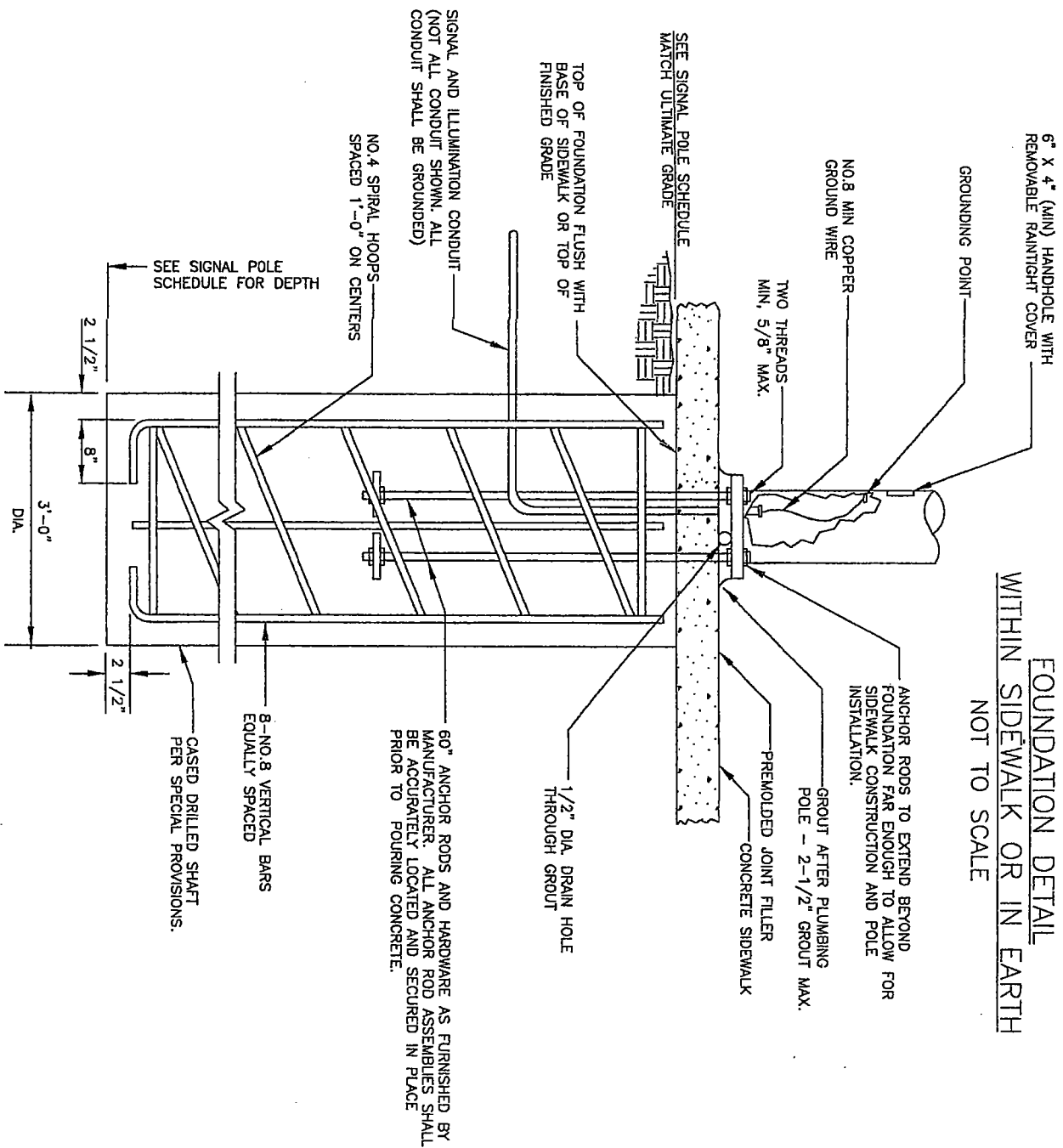
H.Scale: 1/20
 V.Scale: N/A
 Drawn: R/H
 Checked: BRH
 Approved: BRH
 Date: 09/14/04

TSI
 Transportation Solutions, Inc.
 8250 - 155th Avenue NE, Suite 100
 Redmond WA 98052-6829
 T (425) 883-4134
 F (425) 857-8898
 www.tsiwa.com



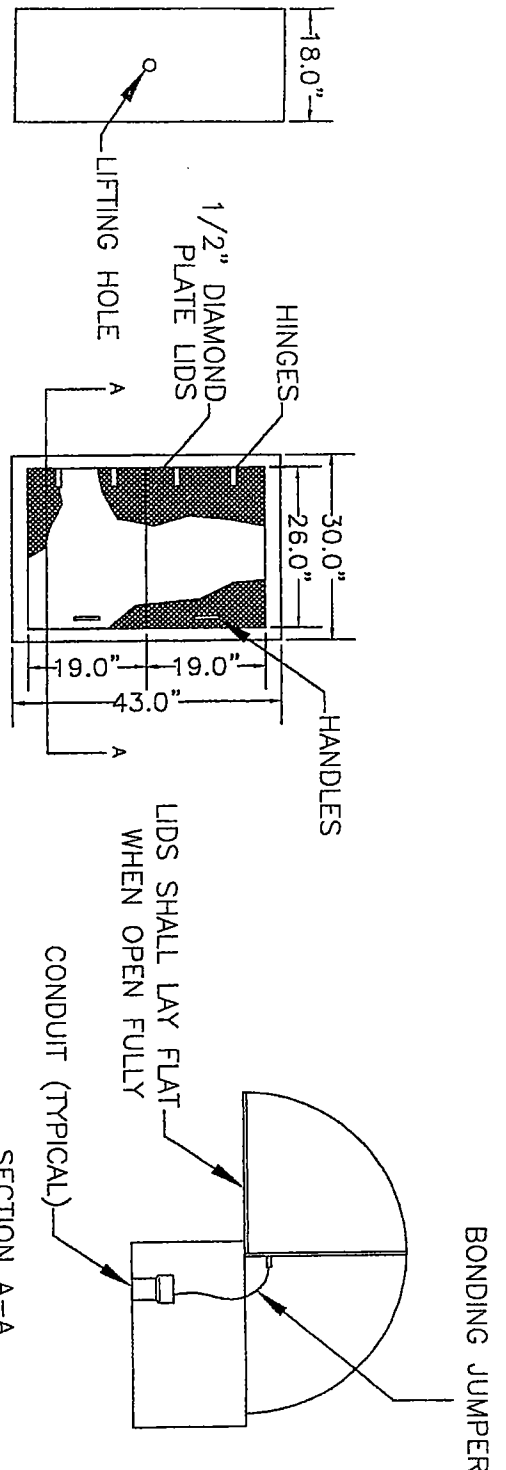
Job Number: 204022
 Bid Schedule: 001
 Drawing Number: TS-5
 Sheet Number: 11 of 15

**FOUNDATION DETAIL
WITHIN SIDEWALK OR IN EARTH
NOT TO SCALE**



CONSTRUCTION NOTES

- ① INSTALL FOUNDATION PER SIGNALIZATION DETAIL SHEET. PROVIDE AND INSTALL SIGNAL STANDARD WITH MAST ARM AND ILLUMINATION ARM PER SIGNAL POLE SCHEDULE. PROVIDE AND INSTALL TWO VEHICLE SIGNAL HEADS, TWO PEDESTRIAN SIGNAL HEADS AND TWO PEDESTRIAN PUSH BUTTONS, ONE MODEL 721 OPTICOM DETECTOR, ONE VIDEO DETECTION CAMERA, 250 WATT HPS LUMINAIRE AND TERMINAL CABINET, INCLUDING MOUNTINGS.
- ② INSTALL FOUNDATION PER SIGNALIZATION DETAIL SHEET. PROVIDE AND INSTALL TYPE V LIGHTING STANDARD WITH 200 W HPS LUMINAIRE, PER WSDOT STANDARD PLAN J-7A.
- ③ CONSTRUCT COMBINATION CONTROLLER, SERVICE, AND BACKUP POWER SOURCE (BPS) FOUNDATION. PROVIDE AND INSTALL CABINET AND RISER WIRE TO THE INTERSECTION CONFIGURATION WITH ALL ASSOCIATED EQUIPMENT. MAKE NECESSARY FIELD CONNECTIONS AND PERFORM REQUIRED TESTS (SEE STD. SPECIFICATIONS AND SPECIAL PROVISIONS). LOCATION AND ORIENTATION OF FOUNDATION SHALL BE AS VERIFIED BY ENGINEER IN THE FIELD.
- ④ PROVIDE AND INSTALL SERVICE CABINET WITH SERVICE AND SUPPLEMENTAL GROUNDS 6 FEET APART (SEE STD. PLAN J-9A).
- ⑤ PROVIDE AND INSTALL TYPE 336 CABINET WITH BACKUP POWER SUPPLY. MAKE NECESSARY CONNECTIONS AND TEST PER SPECIAL PROVISIONS.
- ⑥ COORDINATE WITH BNSF RAILROAD, PROVIDE AND INSTALL RAILROAD TRAFFIC SIGNAL PREEMPTION.
- ⑦ CONTACT LEWIS COUNTY PUBLIC UTILITIES DISTRICT FOR SIGNAL SERVICE. PROVIDE 1-1/2 INCH RGS CONDUIT AND CONDUCTORS, DIRECT FROM SERVICE CABINET TO PUD PEDESTAL.



**TYPE III MODIFIED JUNCTION BOX
(DUAL LID)
NOT TO SCALE**

DISPLAY NOTES

- 1. ALL VEHICLE SIGNAL HEADS SHALL BE CONVENTIONAL TYPE WITH 12" LENSES, SQUARE DOORS AND SHALL BE EQUIPPED WITH ALUMINUM TUNNEL VISORS AND POLY BACKPLATES, EXCEPT THAT THE FOLLOWING SIGNAL HEADS SHALL NOT EMPLOY TUNNEL VISORS:
 - HEADS 21 AND 22 AT BOTH INTERSECTIONS
 - HEADS 61 AND 62 AT SECOND/BIRCH INTERSECTION.
- 2. HEADS SHALL BE PAINTED DARK GREEN, WITH FLAT BLACK INTERIORS. ALL VEHICLE CIRCULAR SIGNAL DISPLAYS SHALL EMPLOY LIGHT-EMITTING DIODES (LEDS).
- 3. ALL PEDESTRIAN SIGNAL HEADS SHALL EMPLOY SIDE-BY-SIDE (NOT OVERLAP) SOLID (NOT OUTLINE) LED SYMBOLIC HAND/MAN LEGENDS AND "Z" GRATE VISORS. THE HOUSING SHALL BE PAINTED DARK GREEN WITH FLAT BLACK VISORS.
- 4. ALL SHALL USE TYPE "W" MOUNTING WITH HORIZONTAL BRONZE PLUMBIZER INSTALLED BETWEEN THE YELLOW AND GREEN BALL SECTIONS.
- 5. PEDESTRIAN SIGNAL HEADS SHALL HAVE TYPE "K" MOUNTING.

GENERAL NOTES

- 1. UTILITY LOCATION (DIAL-A-DIG) PRIOR TO CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
- 2. ALL WORK SHALL BE IN CONFORMANCE WITH STATE OF WASHINGTON STANDARD PLANS AND SPECIFICATIONS, EXCEPT AS MODIFIED BY CONTRACT PLANS AND PROVISIONS.
- 3. ALL JUNCTION BOXES AND CONDUIT RUNS SHALL BE INSTALLED AS SHOWN ON THE PLANS, LOCATIONS SHOWN ARE SCHEMATIC AND THE ENGINEER WILL PROVIDE EXACT LOCATIONS. SEE WASHINGTON STATE STANDARD PLANS J-8a, J-10, AND J-11a. BOXES SHALL BE ADJUSTED TO MATCH ULTIMATE FINISH GRADE.
- 4. COIL 8 FEET OF EACH 5C AND 7C SIGNAL CABLE FROM EACH MAST-ARM MOUNTED SIGNAL HEAD INSIDE THE TERMINAL CABINET.
- 5. UNLESS OTHERWISE SPECIFIED ALL PROPOSED SIGNAL CONDUIT SHALL BE SCHEDULE 80 PVC. ALL CONDUIT SHALL HAVE MINIMUM 24 INCHES COVER.
- 6. ALL EQUIPMENT AND CONDUIT SHALL BE GROUNDED PER NEC ("CODE") AND ACCORDING TO THE DETAILS SHOWN IN THE PLANS. IF THE PLANS DO NOT SHOW ACTUAL GROUNDED DETAILS SEE STATE STANDARD PLAN J-9a AND THE NEC FOR ALTERNATE GROUNDED METHODS.

TRAFFIC SIGNAL NOTES

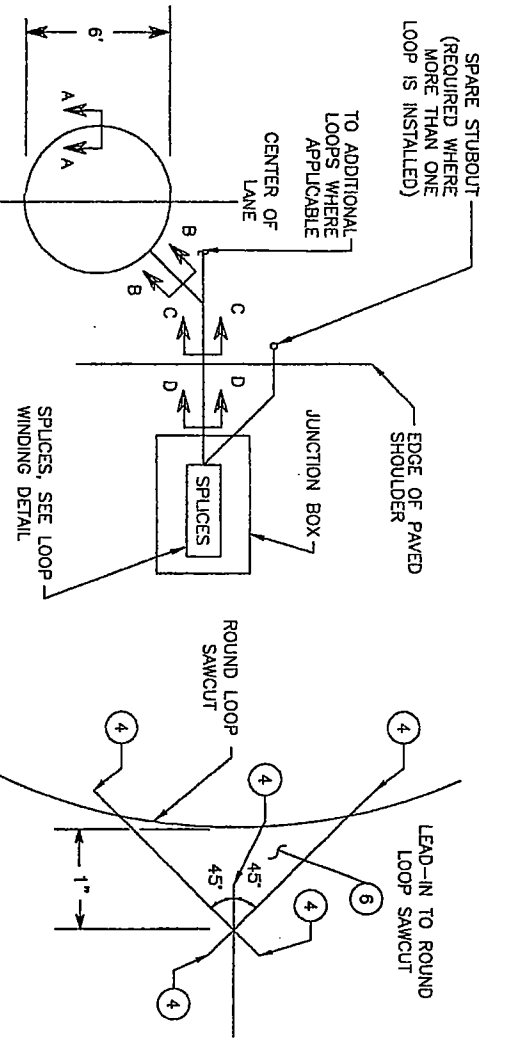
City of Napavine
Washington Street Improvements
Napavine, Washington

Designed: TSI
Drawn: RJH
Checked: BRN
Approved: BRN
Date: 09/14/04

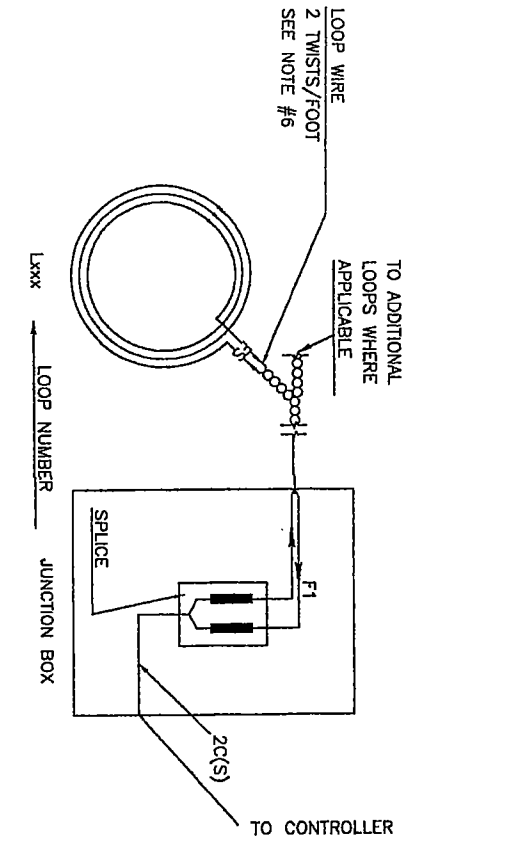
Transportation Solutions, Inc.
2520 - 16th Avenue NE, Suite 100
Redmond WA 98052-6628
T (425) 883-4134
F (425) 887-0998
www.tsiinc.com

Job Number: 204022
Bid Schedule: 001
Drawing Number: TS-7
Sheet Number: 13 of 15

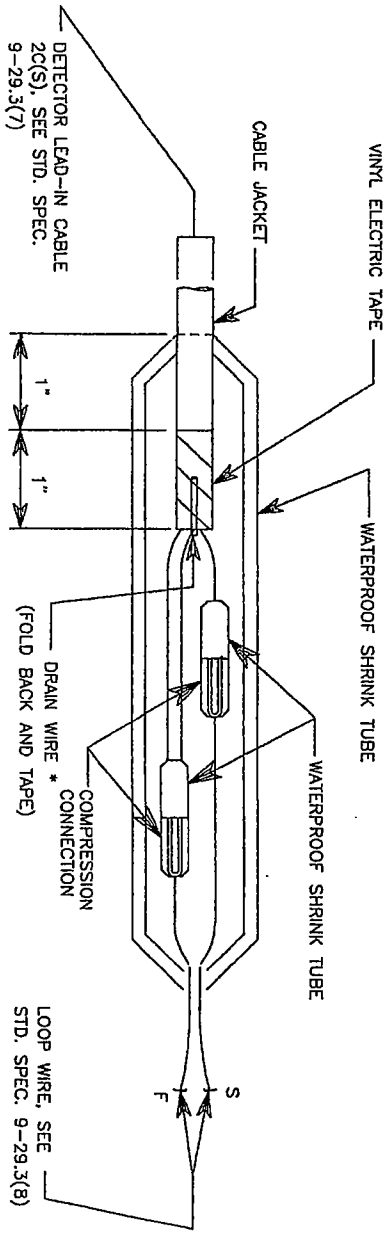
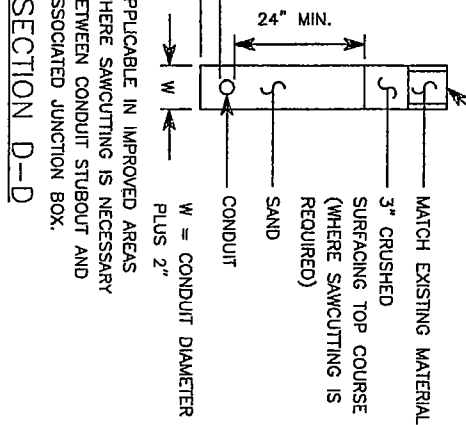
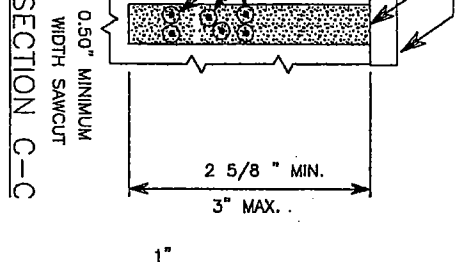
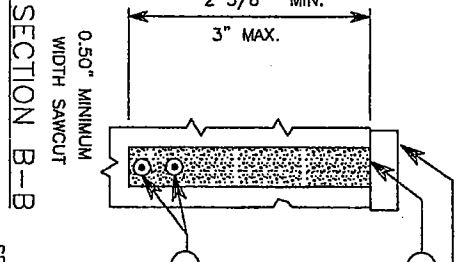
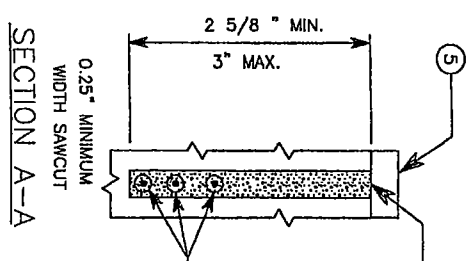
City of Napavine
Washington Street Improvements
Napavine, Washington



TYPE R1 INDUCTION LOOP
LOOP SAWCUT DETAILS
LOOP SAWCUT DETAIL



TYPE R1 INDUCTION LOOP
LOOP WINDING DETAILS



SPlice DETAIL

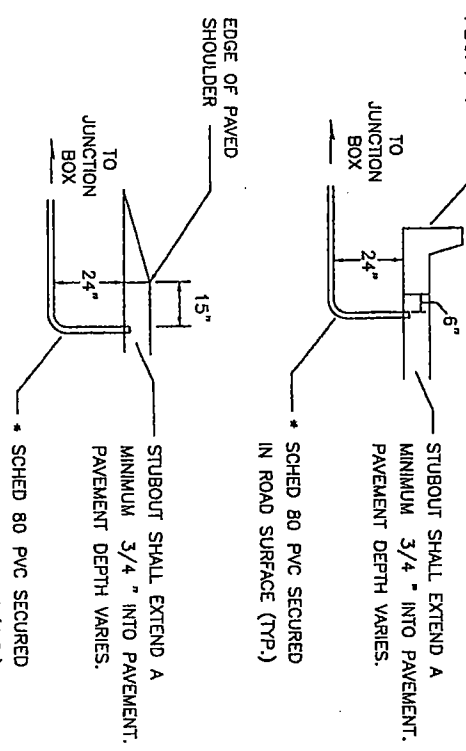
LOOP INSTALLATION NOTES

1. INSTALL JUNCTION BOX AND LEAD-IN CONDUIT.
2. SAWCUT LOOP SLOTS AND LEAD-IN SLOTS.
3. LAY OUT LOOP WIRE STARTING AT JUNCTION BOX, ALLOWING 5' MINIMUM SLACK.
4. INSTALL WIRE IN LOOP SLOT AS SHOWN.
5. FINISH LAYING OUT WIRE AT JUNCTION BOX AND IDENTIFY LEADS WITH LOOP NUMBER AND "S" FOR START AND "F" FOR FINISH.
6. TWIST EACH PAIR OF LEAD WIRES TWO TIMES PER FOOT FROM LOOP TO JUNCTION BOX. REVERSE DIRECTION OF TWIST FOR EACH SUCCESSIVE PAIR INSTALLED.
7. CONSTRUCT SUPPLEMENTAL SPLICE CONTAINING ANY SERIES OR PARALLEL LOOP CONNECTIONS REQUIRED IN PLANS. SUPPLEMENTAL SPLICES ARE SUBJECT TO THE SAME REQUIREMENTS SHOWN FOR THE LOOP LEAD AND SHIELDED CABLE SPLICE.
8. SPLICE LOOP LEADS OR SUPPLEMENTAL SPLICE LEADS TO SHIELDED CABLE AS NOTED IN THE PLANS.
9. COMPLETE INSTALLATION AND TEST LOOP CIRCUITS OR COMBINATION LOOP CIRCUITS. SEE STANDARD SPECIFICATION 8-20.3(1+4)D.
10. CONDUIT FOR LOOP STUBOUT SHALL BE SCHEDULE 80 PVC.

CONSTRUCTION NOTES

1. SEALANT TO ENCAPSULATE CONDUCTORS - SEE SPECIAL PROVISIONS.
2. LOOP WIRE - #14 AWG. SEE STANDARD SPEC. 9-29.3 (8)
3. LEAD-IN WIRES: (SEE INSTALLATION NOTES) THREE PAIR MAXIMUM PER SAWCUT.
4. EXTEND SAWCUT SUFFICIENT LENGTH TO PROVIDE FULL SAWCUT DEPTH AROUND CORNERS.
5. WEARING COURSE (LOOPS SHALL BE INSTALLED PRIOR TO FINAL LIFT IF NEW PAVEMENT IS INSTALLED) WHERE APPLICABLE.
6. FILL WITH SEALANT.

CEMENT CONCRETE CURBS OR GUTTER- SEE STANDARD PLAN F-1

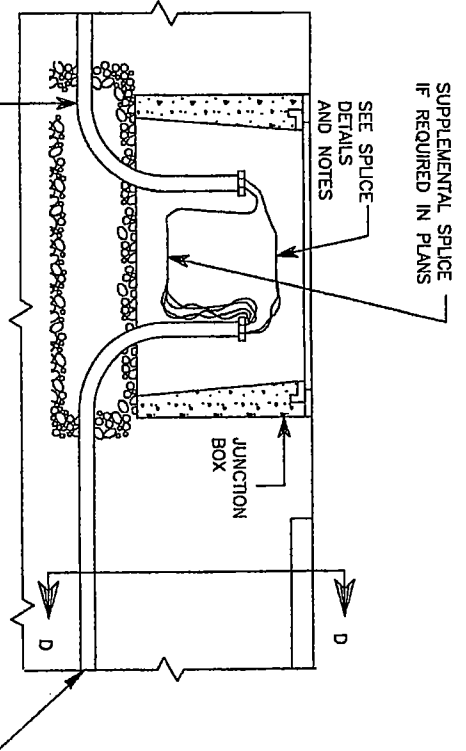
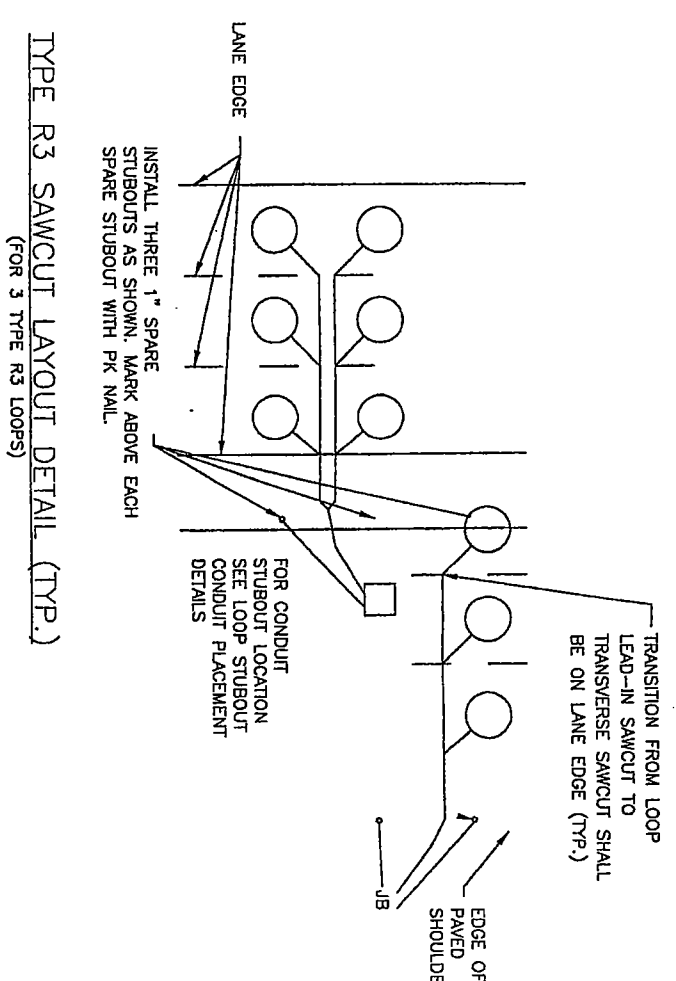
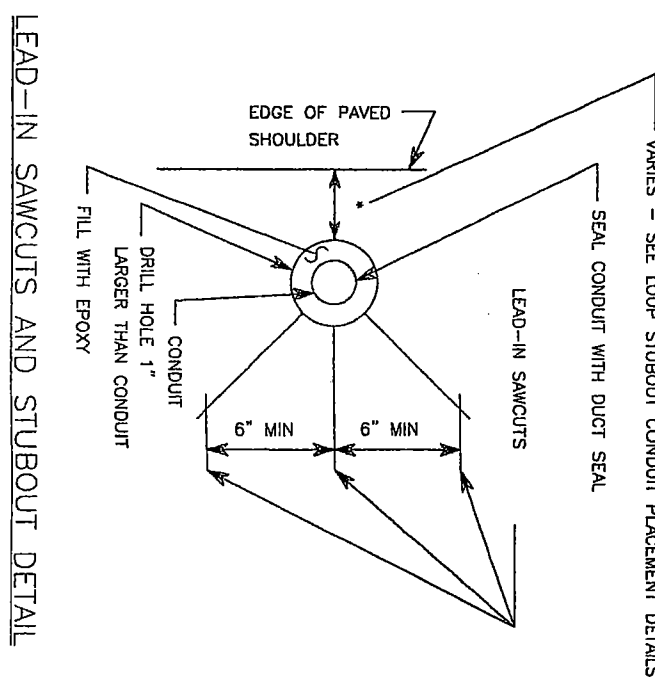
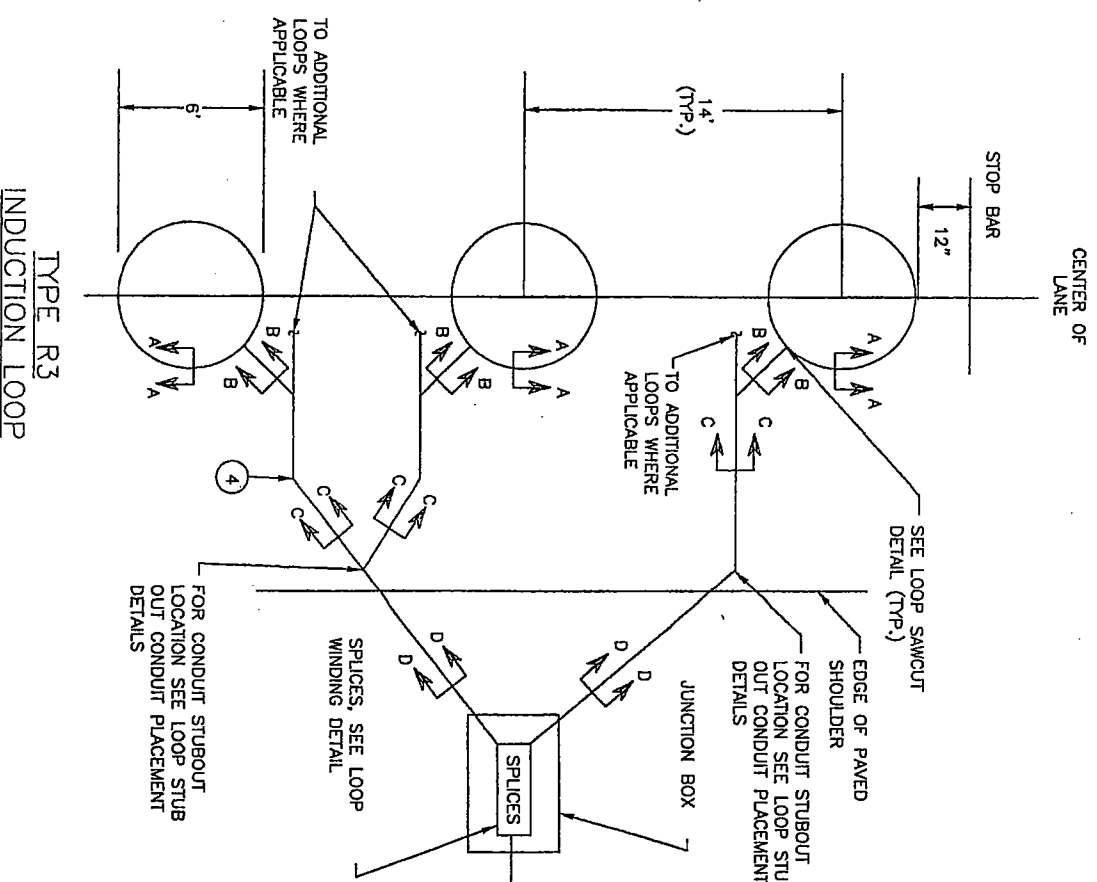
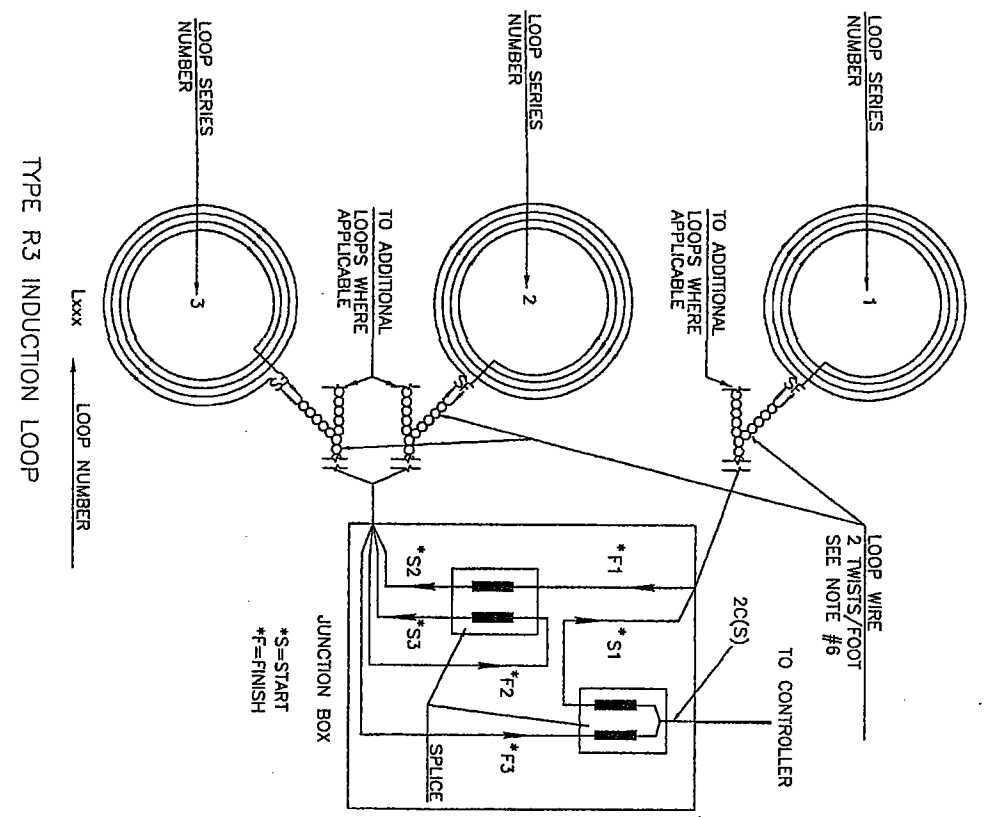
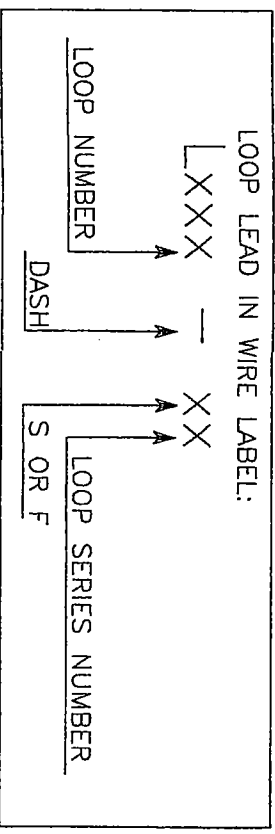


LOOP STUBOUT CONDUIT PLACEMENT DETAILS

LOOP DETECTION NOTES

City of Napavine
Washington Street Improvements
Napavine, Washington

<p>Transportation Solutions, Inc. 8250 - 165th Avenue NE, Suite 100 Redmond, WA 98052-6628 T (425) 883-8300 F (425) 867-6888 www.tsiw.com</p>	<p>NScale: N/A VScale: N/A Datum: PER G&D Survey Books: 08/06/04 Project Directory: 204022 AutoCAD File: 204022-A</p>	<p>Designed: TSI Drawn: RJ, H Checked: BRN Approved: BRN Date: 09/16/04</p>	<p>Job Number: 204022 Bill Schedule: 001 Drawing Number: TS-8 Sheet Number: 14 of 15</p>
---	---	---	--



LOOP DETECTION NOTES

City of Napavine
 Washington Street Improvements
 Napavine, Washington

Designed: TSI
 Drawn: RJH
 Checked: BRN
 Approved: BRN
 Date: 09/14/04

Transportation Solutions, Inc.
 8250 - 165th Avenue NE, Suite 100
 Redmond WA 98052-6628
 T (425) 883-4134
 F (425) 867-0888
 www.tsim.com

Professional Engineer
 State of Washington
 License No. 100000000
 Expires May 9, 2005

Job Number: 204022
 Bid Schedule: 001

Drawing Number: TS-9
 Sheet Number: 15 of 15