ROADWAY DESIGN DRAFTING

INDIVIDUAL CONSTRUCTION NOTES

JULY 2005

JANUARY 2005

INDEX OF INDIVIDUAL NOTES

NOTES FROM SECTIONS A - H & J - K ARE LOCATED IN THE NOTES.CEL CELL LIBRARY.
NOTES FROM SECTION I ARE LOCATED IN THE STD.CEL & TAB.CEL CELL LIBRARIES

SECTION A GENERAL NOTES

GENERAL NOTES LIST

A01 - Existing Railroad Tracks Raised
A02 - Existing Railroad Tracks Lowered
A03 - Intercepting Dike
A04 - Earth Dike
A05 - Chain Link Fence
A06 - Delineators and Chevrons
A07 - Rock Riprap
A08 - Broken Concrete Riprap
A09 - Riprap
A10 - Asphaltic Concrete Curb
A11 - Asphaltic Concrete Island Curb
A12 - Asphaltic Concrete Island Nose
A13 - Fabric Silt Fence
A14 - Fabric Silt Fence-High Porosity
A15 - Fabric Silt Fence-WP-WW-High Porosity
A16 - Fabric Silt Fence-WW-High Porosity
A17 - Fabric Silt Fence, Type "Coir Fiber"
A18 - Fabric Silt Fence, Type OB
A19 - Erosion Checks
A20 - Erosion Control (Special Plan)
A21 - Erosion Control (Standard Plan 501)
A22 - Fabric Silt Checks
A23 - Flexible Post Delineators
A24 - Asphaltic Concrete Median Surfacing
A25 - Fabric Silt Fence-Low Porosity
A26 - Fabric Silt Fence-Low Profile High Porosity
A27 - Fabric Silt Fence-Low Profile Low Porosity
A28 - Fabric Silt Fence-WP-WW-Low Porosity
A29 - Fabric Silt Fence-High Porosity
A30 - Fabric Silt Fence-Low Porosity
A31 - Temporary Silt Checks
A32 - Slope Protection Netting
A33 - Erosion Control Soil Grid Confinement System
A34 - Temporary Erosion Control
A35 - Area Inlet Sediment Filter
A36 - Inlet Liner
A37 - Fabric Silt Fence-Low Profile, Type OB
A38 - Fabric Silt Fence-WW-Low Porosity
A39 - Fabric Silt Fence-Low Profile, Type "Coir Fiber"
A40 - Fabric Silt Fence-WP-Low Porosity
A41 - Hay Bale Silt Check

GENERAL NOTES SHEET INDEX

SECTION A GENERAL NOTES

INFORMATION ONLY **CELL NAME**

COMMON OMISSIONS

On the Plan & Profile Sheet, show the profile for the Bridge Rail & below bridge for:
the existing channel
the new embankment
the new grading

Include the boxed note "BRGR" on the Plan & Profile Sheets when embankment is detailed on the Bridge Plans

2-N Sheet: Add "Curb Inlet Detail" if there are curb inlets on the project.

BRGR STD.CEL

For Details of Grading Section at Bridge Site, see Special Plan *.

Place Horizontally on Profile Portion of Plan & Profile Sheet. (Where applicable)

2-T Sheet: Add "Concrete Pavement Repair Details" if applicable.

Include the boxed note "DNSL" on any Plan or Plan & Profile Sheets when 2-L Sheets are covering an area in more detail.

DNSL STD.CEL

For Details not shown see Sheet 2-L

Place Horizontally on Plan Portion of Plan & Profile Sheet.

Include the boxed note "DNSN" on any Plan or Plan & Profile Sheets when more information or a sketch is located on the 2-N (General Info.) Sheet.

If a Temporary Road is visible on a Mainline Plan & Profile Sheet, and it has it's own Plan & Profile Sheet, include the boxed note "DNST".

DNSN STD.CEL

For Details not shown see Sheet 2-N

Place Horizontally on Plan Portion of Sheet.

If an Intersecting or Adjacent Highway is visible on a Mainline Plan & Profile Sheet, and it has it's own Plan & Profile Sheet, include the boxed note "DNSH".

DNST STD.CEL

For Details not shown see Temporary Road Plan & Profile Sheet

Place Horizontally on Plan Portion of Plan & Profile Sheet.

If an Intersecting or Adjacent County Road is visible on a Mainline Plan & Profile Sheet, and it has it's own Plan & Profile Sheet, include the boxed note "DNSC".

NOTE: When modifying any of these "DNS" notes, do not change the width of the box, instead, add another line of text and adjust the height of the box.

DNSC STD.CEL

For Details not shown see County Road Plan & Profile Sheet

Place Horizontally on Plan Portion of Plan & Profile Sheet.

Where new pavement becomes contiguous with existing pavement, it is not necessary to note on the plans: "Match Existing Grades".

DNSH STD.CEL

For Details not shown see Highway __ Plan & Profile Sheet

Place Horizontally on Plan Portion of Plan & Profile Sheet.

ALIGNMENT INFORMATION ONLY

Any change in direction with a deflection angle of 1° or greater will require a horizontal curve.

For small deflection angles, curves should be long enough to avoid the appearances of kinks and should be at least 500 ft. long. The degree of curvature should not be less than 0° 15'.

2H STD.CEL

Information for all stationed Horizontal Alignments are shown on Sheet 2-H.

Place Horizontally on Plan Portion of Sheet.

All horizontal curves of 0° 30' or greater requires a superelevation.

Current NDOR policy requires a 14 ft. width (2 ft. pavement widening) for inside lane of horizontal curves if:

- *The degree of curvature is greater than 3°;*
- *The operating speed is 45 mph or greater;*
- *The roadway does not have surfaced shoulders;*
- *Projected average daily truck traffic is more than 50 per day.*

DNDT STD.CEL

STA. ___+__ TO STA. ___+__ ON RT.
DO NOT DISTURB TREES.

Place Horizontally on Plan Portion of Plan & Profile Sheet.

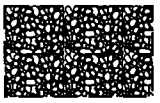
SECTION A GENERAL NOTES

INFORMATION ONLY	CELL NAME	
Inform Drafting if a sketch will be required on the 2-T Sheet showing a longitudinal section of the highway at the R.R. X-ing. It may be req'd. to show Pavement Haunches if Concrete is less than 11" (Asphalt projects do not require a sketch). See Standard Detail 8350 5 E 01 for an example.	A01	*Sta. ___+__ The Existing R.R. Tracks are to Be Raised __' By Others.*
	A02	*Sta. ___+__ The Existing R.R. Tracks are to Be Lowered __' By Others.*
Sheet 2-N is a General Information Sheet. (Shows Legend for Survey Symbols, Standard Notes, Sketches, Etc.) *An Intercepting Dike parallels the roadway and an Earth Dike is transverse to a ditch.* *DIKE TYPICAL SECTION DETAILS* *For an "Earth Dike" use the "edike" cell.* *For an Intercepting Dike use the "dike" cell.* *Both cells are found in the mast.cel cell library.* *Refer to Standard Detail 1920 5 E "Design of Intercepting Dike".*	A03	*Sta. ___+__ to Sta. ___+__ Rt. Build Intercepting Dike, as Shown by Sketch on Sheet 2-N.*
	A04	*Sta. ___+__ Build Earth Dike to Elev. ___.__, as Shown by Sketch on Sheet 2-N.*
	A05	*Sta. ___+__ to Sta. ___+__ Lt. Build __ Lin. Ft. of _' Chain Link Fence. Plan 710-R4.*
Refer to Standard Plan 901-R9, for spacing and locations of chevrons and delineators. *Normally, Delineators and Chevrons will not be required on curves of less than 1°.*	A06	*Sta. ___+__ to Sta. ___+__ Lt. Build Highway Delineators, Type __. S=__'; __-Each & Install __-Chevrons. Plan 901-R9.*
	A23	*Sta. ___+__ to Sta. ___+__ Rt. Build Flexible Post Delineators S=__', __-Each. Plan 901-R9 and Special Plan _C.*

SECTION A GENERAL NOTES

INFORMATION ONLY **CELL NAME**

Add the Type of Rock Riprap to the note. See Chart below & the English Specification Book.



PATTERN NAME: DORRIP
PATTERN SCALE = 1
AA = 0°
WT = 0

Riprap outline
LEVEL = 29
CO = 73
ST = 3
WT = 2

Broken Concrete Riprap does not have a type.

Note A08: Edit to read Station to Station and Side when used longitudinally along roadway, NOT at pipe ends.

Note A09: Use this note when Existing Riprap material is being removed and replaced. Applies to both Rock Riprap and Broken Concrete Riprap. Removal Note is NOT Required.

ROCK RIPRAP GRADATION REQUIREMENTS			
Size of Rock	Percent of Total Weight Smaller than the Given Size	Standard Item Number	Standard Reference Number
Type A 150 lb. 35 lb. 2 lb.	100 50 Not to exceed 10	6105.01	00914
Type B 300 lb. 80 lb. 5 lb.	100 50 Not to exceed 10	6105.02	00914
Type C 700 lb. 150 lb. 10 lb.	100 50 Not to exceed 10	6105.03	00914

Note A12: (Asphaltic Concrete Island Nose) the Pay Item is "EACH". (___ Lin. Ft is for info. to build)

It is not necessary to show Sq. Yds. (Asphalt is paid for by the 'TON')

If for some reason, a Sq. Yd. quantity is included in the note, the note will need a "For Information Only" Label

A07 *Sta. ___+__*
Build __ Tons Rock Riprap, Type __, as Shown by Sketch on Sheet 2-N.

A08 *Sta. ___+__*
Build ___ Tons Broken Concrete Riprap, as Shown by Sketch on Sheet 2-N.

A09 *Sta. ___+__*
Place ___ Tons Riprap, as Shown by Sketch on Sheet 2-N.

A10 *Sta. ___+__ to*
Sta. ___+__
Build ____ Lin. Ft. of Asphaltic Concrete Curb, as Shown by Sketch on Sheet 2-T.

A11 *Sta. ___+__ to*
Sta. ___+__
Build ____ Lin. Ft. of Asphaltic Concrete Island Curb. See Sheet 2-T.

A12 *Sta. ___+__ to*
Sta. ___+__
Build _____' of Asphaltic Concrete Island Nose.
L= __. See Sheet 2-T.

A24 *Sta. ___+__ to*
Sta. ___+__
Build Asphaltic Concrete Median Surfacing.
See Sheet 2-T.

SECTION A GENERAL NOTES

EROSION CONTROL INFORMATION			
EROSION CONTROL PAY ITEM	DESCRIPTION	WHERE USED	PLAN NUMBERS
Temporary Erosion Control	Straw or Excelsior Blanket	Phased Construction	
Erosion Control, Type A	Synthetic Material Blanket	Final Erosion Control (Slope Only)	
Erosion Control, Type AA	Synthetic Material Blanket	Final Erosion Control	
Erosion Control, Type AAA	Synthetic Material Blanket	Culvert Discharge Areas	Special Plan 5012 I "Erosion Control, Type "A" & "AA"
Erosion Control, Type AAAA	Synthetic Material - High Velocity	Culvert Discharge Areas	
Erosion Control, Type B	Straw or Excelsior Blanket	Protect Shoulders	Special Plan 5013 I "Erosion Control, Type "AAA"
Erosion Control, Type B-1	Coconut Netting	Protect Shoulders	
Erosion Control, Type B-2	Coconut Netting	Protect Shoulders	Standard Plan 501-R3 "Erosion Control"
Erosion Control, Type C	Coconut Blanket	Final Erosion Control	
Erosion Control, Type HV	High Velocity Straw or Excelsior	Final Erosion Control	
Erosion Control, Type J	Jute Mesh Erosion Blanket	Sandy Areas	
Slope Protection Netting	Synthetic Netting	Over Mulch In Sand	Standard Plan 5014 I "Slope Protection Netting"
Erosion Checks	Bales of Hay/Straw	Ditches	
Erosion Checks, Type A	Bales of Hay/Straw with a Particular Erosion Control Fabric	Ditches	
Erosion Checks, Type AA			
Erosion Checks, Type AAA			
Erosion Checks, Type B			
Erosion Checks, Type C			Special Plan 5100 I "Erosion Checks (All Types) and Fabric Silt Checks"
Erosion Checks, Type HV			
Erosion Checks, Type ST	Bales of Hay/Straw with a Particular Erosion Control Fabric With Silt Traps (ST)	Ditches	Special Plan 5102 I "Hay Bale Silt Checks"
Erosion Checks, Type ST-A			
Erosion Checks, Type ST-AA			Special Plan 5108 I "Temporary Silt Checks"
Erosion Checks, Type ST-AAA			
Erosion Checks, Type ST-B			
Erosion Checks, Type ST-C			
Erosion Checks, Type ST-HV			
Fabric Silt Fence - Low Porosity	Filtration Material to stop silt	During Construction	
Fabric Silt Fence - High Porosity			
Fabric Silt Fence - Low Profile Low Porosity			
Fabric Silt Fence - Low Profile High Porosity			
Fabric Silt Fence - Low Porosity, Type ST	Filtration Material to stop silt with Silt Traps (ST)	During Construction	5700 I "Silt Fence Details"
Fabric Silt Fence - High Porosity, Type ST			
Fabric Silt Fence, Type OB	Organic Biodegradable Silt Fence	During Construction	5750 I "Silt Fence Installation In Water"
Fabric Silt Fence - Low Profile, Type OB			
Fabric Silt Fence, Type COIR Fiber	Biodegradable Coconut Fabric Silt Fence	Wetland Protection During Construction	
Fabric Silt Fence - Low Profile, Type COIR Fiber			
Fabric Silt Fence -WP-WW- Low Porosity	Silt Fence on Wood Post with a Woven Wire Backing	During Construction	
Fabric Silt Fence -WP-WW- High Porosity			
Fabric Silt Check	Speed Bumps For Water	Ditches	
Hay Bale Silt Check	Hay/Straw Bales set on the Ground	Ditches	
Soil Grid (Cellular) Confinement	Heavy Duty Ditch Protection	Ditches	
Area Inlet Sediment Filter	Keeps Silt Out Of Area Inlet	Grate Inlets	Standard Detail 5480 5 "Inlet Liner Details"
Inlet Liner	Silt Protection For An Inlet	Inlet Protection	

ABBREVIATIONS:
HV = High Velocity
WP = Wooden Posts
WW = Woven Wire
OB = Organic Biodegradable
ST = Silt Trap

SECTION A GENERAL NOTES

INFORMATION ONLY

Generally Silt Fence only needs to be shown on the plans when protecting Wetlands, a Golf Course, Park Grounds or if located in an Urban area.

Unique situations, as determined by the NDOR Agronomist, may dictate that the Silt fence be shown on the plans.

Typically, for Rural Projects, Erosion Control Tabular Notes placed on the the 2-N Sheet will be sufficient.

Special Plan 5700 1 "Silt Fence Details"
Special Plan 5750 1 "Silt Fence Installation In Water"

CELL NAME

FABRIC SILT FENCE

A13 *Sta. ___+__ to*
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence. Special Plan _C.

A14 *Sta. ___+__ to*
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-High Porosity. Special Plan _C.

A15 *Sta. ___+__ to*
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-WP-WW-High Porosity. Special Plan _C.

A16 *Sta. ___+__ to*
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-WW-High Porosity. Special Plan _C.

A38 *Sta. ___+__ to*
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-WW-Low Porosity. Special Plan _C.

INFORMATION ONLY

CELL NAME

FABRIC SILT FENCE

A17

Sta. ___+__ to
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence, Type "Coir Fiber".
Special Plan _C.

Special Plan 5700 1 "Silt Fence Details"
Special Plan 5750 1 "Silt Fence Installation In Water"

A39

Sta. ___+__ to
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-Low Profile, Type "Coir Fiber". Special Plan _C.

A18

Sta. ___+__ to
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence, Type "OB".
Special Plan _C.

Seldom used.
"OB" - Organic Biodegradable (Lightweight Burlap)

A37

Sta. ___+__ to
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-Low Profile, Type "OB". Special Plan _C.

A25

Sta. ___+__ to
Sta. ___+__ Rt.
Build ___ Lin. Ft. of Fabric Silt Fence-Low Porosity.
Special Plan _C.

INFORMATION ONLY	CELL NAME	
		FABRIC SILT FENCE
	A26	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build ___ Lin. Ft. of Fabric Silt Fence-Low Profile High Porosity. Special Plan _C.*
Special Plan 5700 1 "Silt Fence Details" *Special Plan 5750 1 "Silt Fence Installation In Water"*	A27	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build ___ Lin. Ft. of Fabric Silt Fence-Low Profile Low Porosity. Special Plan _C.*
	A28	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build ___ Lin. Ft. of Fabric Silt Fence-WP-WW-Low Porosity. Special Plan _C.*
	A40	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build ___ Lin. Ft. of Fabric Silt Fence-WP-Low Porosity. Special Plan _C.*
	A29	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build ___ Lin. Ft. of Fabric Silt Fence-High Porosity, Type "ST". Special Plan _C.*
	A30	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build ___ Lin. Ft. of Fabric Silt Fence-Low Porosity, Type "ST". Special Plan _C.*

INFORMATION ONLY	CELL NAME	
		EROSION CHECKS
Special Plan 5100 1 "Erosion Checks (All Types) and Fabric Silt Checks" *Special Plan 5102 1 "Hay Bale Silt Checks"*	A19	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build Erosion Checks,* *Type __. Spacing = __',* *__-Bales Each, w/__-Bales* *Total. Special Plan _C.*
	A41	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build Hay Bale Silt Check.* *Spacing = __', __-Bales Each,* *w/__-Bales Total.* *Special Plan _C.*
	A22	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Lin. Ft. of Fabric* *Silt Checks. Special Plan _C.*
Special Plan 5108 1 "Temporary Silt Checks"	A31	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Lin. Ft. of* *Temporary Silt Checks.* *Special Plan _C.*

INFORMATION ONLY	CELL NAME	
		EROSION CONTROL
Special Plan 5012 1 "Erosion Control, Type "A" & "AA" *Special Plan 5013 1 "Erosion Control, Type "AAA"*	A20	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Sq. Yds. of Erosion Control, Type __.* *(__' Width). Special Plan _C.*
Standard Plan 501-R3 Covers Erosion Control Types: B, B1, HV & J. (Wood Excelsior, Straw or Jute Blanket and Coconut Mat)	A21	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Sq. Yds. of Erosion Control. (__' Width).* *Plan 501-R3.*
Special Plan not required.... to be furnished by Mfg. *The standard size for this material is 8' x 20'. The material is available in 4", 6" & 8" depths.*	A33	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Sq. Yds. of Erosion Control, Soil Grid Confinement System (__" Depth/__' Width).* *Special Plan _C.*
TEMPORARY: *To be removed under the same contract.*	A34	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Sq. Yds. of Temporary Erosion Control.* *(__' Width). Plan 501-R1*
Special Plan 5014 1 "Slope Protection Netting"	A32	*Sta. ___+__ to* *Sta. ___+__ Rt.* *Build __ Sq. Yds. of Slope Protection Netting.* *(__' Width). Special Plan _C.*
Detail furnished by Mfg. Contractor.	A35	*Sta. ___+__ Rt.* *Build Area Inlet Sediment Filter.*
Standard Detail 5480 5 "Inlet Liner Details"	A36	*Sta. ___+__ Rt.* *Build Inlet Liner.* *See Sketch on Sheet 2-N.*

SECTION B GUARDRAIL NOTES

GUARDRAIL NOTES LIST

B01 - W-Beam and Thrie-Beam Guardrail
B02 - W-Beam Guardrail
B03 - Safety Beam Guardrail
B04 - Crash Cushion Attenuating Terminal
B05 - Install Impact Attenuator
B06 - Build Impact Attenuator
B07 - Inertial Barriers
B08 - Reset Guardrail
B09 - Remove and Salvage Guardrail (Sta. to Sta.)
B10 - Cable Guardrail Terminal Anchorage Sections
B11 - Remove and Salvage Guardrail (Sta.)

GUARDRAIL NOTES SHEET INDEX

SECTION B GUARDRAIL NOTES

INFORMATION ONLY

SAFETY BEAM GUARDRAIL SPECIAL PLANS	
Plan	Plan Description
Special Plan 7040 1	Bridge Approach Section (Includes W-Thrie Beam Transition Section)
Special Plan 7044 1	W-Thrie Beam Transition Section (Paid for as 1-Ea. when separate from B.A.S.)
Special Plan 7041 1	Special Bridge Approach Section (Thrie-Beam Rail)
Design Guide 7774 6	Guardrail End Treatment, Type I (ET-2000)
Design Guide 7775 6	Guardrail End Treatment, Type I (BEST)
Design Guide 7776 6	Guardrail End Treatment, Type I (SKT-350)
Design Guide 7772 6	Guardrail End Treatment, Type II (SRT-75)
Design Guide 7773 6	Guardrail End Treatment, Type II (SRT-350)
Design Guide 7779 6	Guardrail End Treatment, Type II (FLEAT)
Special Plan 7071 1	Bull Nose (12.5' Tapered)
Special Plan 7075 1	Bull Nose (12.5' Parallel)
Special Plan 7044 1	Hardware Details (Includes W-Thrie Beam Transition Section)
Special Plan 7043 1	Guardrail Location Tables
Special Plan 7045 1	End Anchorage Assemblies
Special Plan 7771 1	M.E.L.T. (Used by permission only) (Not normally used on State highways)

SAFETY BEAM GUARDRAIL INFORMATION

If you are describing only one corner of a bridge this note should read Sta. to Sta. (Rt. or Lt.)

Include totals of all Guardrail items in one note for each bridge. If there is a Guardrail Installation Special Plan, you do not need (Table "") in the construction note. Tables will be identified on Guardrail Installation Special Plan. In overpass situations, use 1-Guardrail note for the stationed centerline over the bridge and 1-Guardrail note for the stationed centerline that goes under the bridge to protect abutments or piers.*

When dealing with "Nested Guardrail", include the additional length in the "Build __ Lin. Ft. of W-Beam Guardrail" note and let the Guardrail Installation Special Plan show the details of the "nesting".

REMODEL BRIDGE CURB note should be addressed with the Bridge note.

If you do not have a Pay Length, the Guardrail note should be written as note B03.

If CONCRETE ANCHOR BLOCKS are required, they should be included with the guardrail note.

Installation of Impact Attenuator System
INSTALL - when furnished by the state.
BUILD - when furnished by the contractor.

Inertial Barriers (Fitch Barrels) TEMPORARY installation by Traffic Engineer.

End Treatments for W-Beam Guardrail (Paid, 1-Each)

Guardrail End Treatment, Type I - Used for 65 mph and above for parallel installations or 25:1 Taper Rates. All rectangular heads on the ends of parallel or 25:1 tapers.
ET-2000 (LET or PLUS) - Extruding Terminal
BEST - Beam Eating Safety Terminal
SKT 350 - Sequential Kinking Terminal

Guardrail End Treatment, Type II - Used for 65 mph and lower and on 15:1 Taper Rates.
SRT 350 - Curved Slotted Rails
FLEAT - Flared Energy Absorbing Terminal, a tangent (Rectangular Head, Tapered)
SRT 75 - Three short Slots in the Rail

When building a Cable to Safety Beam Guardrail Transition Section, you do not need a special build note. This will show up on the Guardrail Installation Plan.

For more information refer to the Nebraska Department of Roads' "Guide to Guardrail Pay Items" document.

CELL NAME

B01

Sta. ___+__
Build ___ Lin. Ft. of W-Beam Guardrail & ___ Lin. Ft. of Thrie-Beam Guardrail.
Special Plan _C.

B02

Sta. ___+__
Build ____ Lin. Ft. of W-Beam Guardrail.
_-Bridge Approach Sections.
_-Special Bridge Approach Section.
_-Guardrail End Treatment, Type I.
_-Guardrail End Treatment, Type II.
_-Bullnose End Treatment (Tapered)
_-Bullnose End Treatment (Parallel)
_-W-Thrie Beam Transition Section.
_-End Anchorage Assemblies.
_-Alternate End Anchorage Assemblies.
_-Culvert Mounted Guardrail Posts.
_-Concrete Anchor Blocks.
_-Controlled Releasing Terminal Posts (CRT).
Special Plan _C.

B03

Sta. ___+__
Build Safety Beam Guardrail.
_-Bridge Approach Sections.
_-Guardrail End Treatment, Type I
_-Guardrail End Treatment, Type II.
Special Plan _C.

SECTION B GUARDRAIL NOTES

INFORMATION ONLY | **CELL NAME**

Installation of Impact Attenuator System
INSTALL - when furnished by the state.
BUILD - when furnished by the contractor.

Inertial Barriers (Fitch Barrels) TEMPORARY installation by Traffic Engineer.

CRASH CUSHION ATTENUATING TERMINAL

SYRO-CRASH-CUSHION ATTENUATING TERMINAL
SENTRE-CRASH-CUSHION ATTENUATING TERMINAL

IMPACT ATTENUATORS

QUADGUARD
TRACC
REACT 350

INERTIAL BARRIERS

Fitch Barrels - See Examples in Drafting Room.
Refer to Fitch Barrels as "Inertial Barrier".

"Temporary Inertial Barrier" Does not need a note as it will be handled on plans from TRAFFIC ENGINEERING.

Two notes are required for Remove and Reset Guardrail:
1-Note to Remove & Salvage Guardrail, and
1-Note to Reset Guardrail.

To reset Guardrail, the stationing includes the End Sections, if reusing the existing T.A.S.

If you are going to 'Salvage" Guardrail, do so for the entire installation, not just part of the installation.

Guardrail Lengths must be the same to combine in one note, otherwise you need separate notes.

RESETTING CABLE GUARDRAIL ONLY

Regarding the Standard Plan that was used to build the existing installation :

The old Standard Plan No. must be blocked out and made into a Special Plan __C with the words 'FOR INFORMATION ONLY' placed above the title.

The Special Plan used to Reset the cable guardrail is our current Cable Guardrail Plan.

"SN25" from the 'std.cel' cell library:

- The existing Cable Guardrail was constructed in accordance with the details shown on "For Information Only Special Plan #C". The Contractor shall reset the guardrail in accordance with Standard Plan 702-R6.

Additional Guardrail Removal Notes are found in the Removal Note Section:
H03 - Remove Guardrail (Station)
H13 - Remove Guardrail (Station to Station)
H14 - Remove Guard Posts

B04 *Sta. ___+__*
Install _- Crash Cushion Attenuating Terminal.
Special Plan _C.

B05 *Sta. ___+__*
Install _-Impact Attenuators.
Special Plan _C.

B06 *Sta. ___+__*
Build _-Impact Attenuators.
Special Plan _C.

B07 *Sta. ___+__*
Build Inertial Barriers.
Special Plan _C.

B08 *Sta. ___+__ to*
Sta. ___+__ Lt.
Reset __ Lin. Ft. of Guardrail. Special Plan _C.
(Includes _-Terminal Anchorage Sections).

B09 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove and Salvage _ Lin. Ft. of Guardrail.

B11 *Sta. ___+__*
Remove and Salvage _ Lin. Ft. of Guardrail.

SECTION B GUARDRAIL NOTES

INFORMATION ONLY **CELL NAME**

INTERMEDIATE ANCHORAGE SECTION

Intermediate Anchorage Section is required when pay length is over 2000 Lin. Ft.

When building Guardrail Sta. to Sta., the length will not include the Terminal Anchorage Sections.

B10 *Sta. ___+__ to*
Sta. ___+__ Lt.
Build __ Lin. Ft. of
Cable Guardrail. _-Terminal
Anchorage Sections.
_-Intermediate Anchorage
Section. Special Plan _C.

SECTION C1 NEW PIPE POLICY NOTES

NEW PIPE POLICY NOTES LIST

PPE01 - Build Culvert Pipe, Type 2, Class "_", Class "_" Bedding
PPE02 - Build Culvert Pipe, Type 2, Jacked
PPE03 - Build Culvert Pipe w/F.E.S.'s
PPE04 - Build Culvert Pipe w/F.E.S. on Inlet & Outlet in Conc. Box Culv.
PPE05 - Build Jacked Culvert Pipe, Type 1 or 2, Class "_"
PPE06 - Build Culvert Pipe as Median Structure
PPE07 - Remove Bridge & Build Culvert Pipe
PPE08 - Build Culvert Pipe w/F.E.S. on Inlet & Outlet in Exist. C.B.C. (Tap)
PPE09 - Build Culvert Pipe w/Headwall & w/Overhang
PPE10 - Build Culvert Pipe w/Headwall & w/Splash Basin
PPE11 - Build Round Equivalent Culvert Pipe w/F.E.S.
PPE12 - Build Round Equivalent Culvert Pipe w/Headwalls
PPE13 - Build Culvert Pipe & Headwalls
PPE14 - Build Twin Culvert Pipe & Headwalls
PPE15 - Build Twin Culvert Pipe w/Flared End Sections
PPE16 - Build Twin Culvert Pipe on Skew & Headwalls
PPE17 - Remove R.C.P. & Build Culvert Pipe w/F.E.S.'s
PPE18 - Build Culvert Pipe w/F.E.S.'s & Bar Grate
PPE19 - Build Culvert Pipe w/F.E.S. on Inlet & Outlet in Stubout
PPE20 - Build Culvert Pipe w/F.E.S.'s and Build Culvert Pipe as Stubout
PPE21 - Build Culvert Pipe for Median Structure w/F.E.S., Bar Grate & Stubout
PPE22 - Build Culvert Pipe as Irrigation Structure
PPE23 - Build Concrete Flume Type "_" w/Culvert Pipe
PPE24 - Lay Driveway Culvert Pipe & Build Earth Drive
PPE25 - Build Culvert Pipe for Crossover
PPE26 - Install Twin Culvert Pipe for Temporary Road
PPE27 - Build Twin Culvert Pipe for Temporary Road
PPE28 - Build Culvert Pipe & Extend w/Temp. Culvert Pipe
PPE29 - Build Round Equivalent Storm Sewer Pipe
PPE30 - Build Storm Sewer Pipe
PPE31 - Build Sanitary Sewer Pipe
PPE32 - Lay Driveway Culvert Pipe & Build Earth Drive & Surface. See Sheet 2-S

NEW PIPE POLICY INFORMATION:

* Use "New Pipe Policy Notes" ON ALL PIPES whenever the Pipe Policy applies to ONE OR MORE pipes on the project.

* DO NOT use "New Pipe Policy Notes" whenever the Pipe Policy does not apply to ANY of the pipes on the project.

NEW PIPE POLICY NOTES SHEET INDEX

SECTION C1 NEW PIPE POLICY NOTES

INFORMATION ONLY | **CELL NAME**

RAILROAD CULVERT PIPE

REQUIRED PIPE LENGTHS UNDER R.R. TRACKS
(Jacking may be required)
℄ R.R. to end of pipe - 15' Minor Tracks
℄ R.R. to end of Pipe - 25' Major Tracks

Class IV or Class V Pipe may be required in areas of excessive fill or under R.R. tracks.
Bedding Sketch is required on Culvert X-Sec.

PPE01

Sta. ___+__
DA=___Ac.,Q_ =__cfs,HW=__'
Build __" x __' Culvert Pipe Pipe, Type 2. Class _ , Class "_" Bedding w/Flared End Sections. Plan 410-R3 & Special Plan _C. Fill= __'. Exc.=__ Cu. Yds.

PPE02

Length of Pipe Partially Jacked

Class IV or Class V Pipe may be required in areas of excessive fill or under Railroad Tracks

Designer should review Design Pipe Material Policy Flow Chart for Pipe Type and placement restrictions

Sta. ___+__
Build __" x __' Culvert Pipe Type 2, (Includes __' Jacked Culvert Pipe, Type 2 Class __).
Special Plans _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

CULVERT PIPE

The Culvert Pipe notes are typical and cover several situations. Edit out information that does not apply.

PPE03

NOTE: Q__, D.A. and H.W. required on all crossroad culvert construction notes.
Q__ - Design Discharge (c.f.s.)
Subscript indicates storm frequency used.
D.A. - Drainage Area in Acres.
H.W. - Design Headwater, depth of flow measured from the flow line of the inlet.

If drainage information cannot be determined, the following note should be used:
Design Discharge (Q) and Drainage Area (D.A.) cannot be determined by office means unless otherwise noted on the plans.

Sta. ___+__
DA=___Ac.,Q_ =__cfs,HW=__'
Build __" x __' Culvert Pipe Type 2, 3, 4, 5, 7 or 8 w/Flared End Sections. Plan 410-R3 & Special Plan _C. Fill= __'. Exc.=__ Cu. Yds.

PPE04

NOTE:
Broken back reference will NOT be made on new pipes.

B.B. - Broken Back
DBL. B.B. - Double Broken Back

A bend on a concrete pipe can be either Vertical or Horizontal. However, DO NOT specify Horizontal or Vertical when calling for an elbow or a collar with a bend.

BOX CULVERTS with Bends or Breaks:
- Bends are horizontal
- Breaks are vertical.
You DO NOT have to call out the ° of Bend or Break.

Sta. ___+__
DA=___Ac.,Q_ =__cfs,HW=__'
Build __" x __' Culvert Pipe Type 2, 3, 4, 5, 7 or 8 w/Flared End Section on Inlet & Outlet in Concrete Box Culvert, _-__° Elbow.
Plans 410-R3, 425-R3 & Special Plan _C. Fill= __'. Exc.=__ Cu. Yds.

SECTION C1 NEW PIPE POLICY NOTES

INFORMATION ONLY	CELL NAME	CULVERT PIPE
Full Length of Pipe Jacked. *If R.C.P. Class __ is to be Jacked, it must be stated in the note.*	PPE05	*Sta. ___+__* *Build __" x __' Jacked Culvert Pipe, Type 1 or 2 Class __. Special Plan _C* *Fill= __'. Exc.=__ Cu. Yds.*
No Excavation Quantity is required for Median Structures in new embankment. *Structures in existing medians DO require excavation.* *If you remove pipe from an 'Existing' Median Structure, you need to pay for excavation.* *Excavation is not to be paid for when installing new Flared End Sections directly on existing pipes.*	PPE06	*Sta. ___+__* *Build __" x __' Culvert Pipe Type 2, 3, 4, 5, 7 or 8 as Median Structure with Flared End Sections. Plan 410-R3 & Special Plan _C. Fill= __'.*
	PPE07	STA. ___+__ __-__' SPAN TIMBER BRIDGE WD. FLOOR, W/__' CLEAR RDWY. *DA=__Ac.,Q__ =__cfs, HW=__'* *Remove & Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 and Headwalls. _-__° Elbows. Plan 425-R3 & Special Plans _C & _C.* *Fill= __'. Exc.=__ Cu. Yds.*
NOTE: *WHEN USING EXTEND PIPE NOTES, WHEN FILL IS GREATER THAN 10', THE NOTE SHOULD INCLUDE:* *Fill=__'.*		
Only pay for a tap if tapping into an existing Inlet, Culvert or Box Culvert.	PPE08	*Sta. ___+__* *DA=__Ac.,Q__ =__cfs,HW=__'* *Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 with Flared End Section on Inlet, and Outlet in Existing Conc. Box Culvert. _-Tap, _-__° Elbow. Plans 410-R3, 425-R3, 428-R2 & Special Plan _C. Fill= __'. Exc.=__ Cu. Yds.*

INFORMATION ONLY **CELL NAME**

CULVERT PIPE

PPE09

If you are phasing the construction of a drainage structure, handle on the drainage cross sections, with dimensions, stating Phase 1, Phase 2.
DO NOT phase the construction notes in the plans.

Sta. ___+__
DA=__Ac.,Q__=__cfs, HW=__'
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 and Headwall on Inlet, with Overhang on Outlet, Type "_". Special Plans _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

PPE10

Designer should review Design Pipe Material Policy Flow Chart for Pipe Type and placement restrictions

Sta. ___+__
DA=__Ac.,Q__=__cfs, HW=__'
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 and Headwall on Inlet, _-__° Elbow, with Splash Basin on Outlet, as Shown by Sketch on Sheet 2-N. Plan 425-R3 & Special Plan _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

PPE11

The Round Equivalent notes are typical and cover several situations. Edit out any Pipe type that does not apply.

Round Equivalent Pipe:
Pipe-Arch: Concrete & Corrugated Metal
Elliptical Pipe: Concrete only

Refer to Sheet 4-C for Pipe-Arch to Round Equivalent conversion table and example notes.

Sta. ___+__
DA=__Ac.,Q__=__cfs, HW=__'
Build __" x __' Round Equivalent Culvert Pipe, Type 2, 3, 4 or 5 with Flared End Sections. Plan 410-R3 & Special Plan _C. Fill= __'. Exc.=__ Cu. Yds.

PPE12

If the Headwall Special Plan allows for the construction of different types of Headwalls, the type must be addressed in the note.

Sta. ___+__
DA=__Ac.,Q__=__cfs, HW=__'
Build __" x __' Round Equivalent Culvert Pipe, Type 2, 3, 4 or 5 & Headwalls. Special Plans _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

INFORMATION ONLY **CELL NAME**

CULVERT PIPE

PPE13 *Sta. ___+__*
DA=__Ac., Q__=__cfs, HW=__'
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 and Headwalls.
Special Plans _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

If Headwall Type is required, please note after the word Headwalls.

PPE14 *Sta. ___+__*
DA=__Ac.,Q__=__cfs, HW=__'
Build Twin __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 and Headwalls.
Special Plans _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

WHEN DESCRIBING MULTIPLE PIPES:
Use the 'word' for the number of pipes, NOT the number. (i.e. Twin, Triple, etc.)

PPE15 *Sta. ___+__*
DA=__Ac.,Q__=__cfs, HW=__'
Build Twin __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 w/Flared End Sections. Plan 410-R3 & Special Plan _C.
Fill= __'. Exc.=__ Cu. Yds.

Multiple Pipes having Flared End Sections require a sketch showing the dimensions between the pipes (usually on drainage cross-sections).

PPE16 *Sta. ___+__*
DA=__Ac.,Q__=__cfs, HW=__'
Build Twin __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 on __° Skew and Headwalls.
Special Plans _C & _C.
Fill= __'. Exc.=__ Cu. Yds.

INFORMATION ONLY **CELL NAME**

CULVERT PIPE

PPE17

STA. ___+__
___" x __' REINF. CONC.
PIPE W/HDWLS.
DA=__Ac.,Q__ =__cfs, HW=__'
Remove & Build __" x __'
Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 with Flared End Sections. Plan 410-R3 & Special Plan _C.
Fill= __'. Exc.=__ Cu. Yds.

PPE18

Sta. ___+__
DA=__Ac.,Q__ =__cfs, HW=__'
Build ___" x __ Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 with Flared End Sections & Build Bar Grate on Inlet. Plans 410-R3, 413-R1 & Special Plan _C. Fill= __'.
Exc.=__ Cu. Yds.

PPE19

Sta. ___+__ Lt. to
Sta. ___+__ Lt.
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 with Flared End Section on Inlet & Outlet in Stubout, _-__° Elbow, _- Concrete Collar. Plans 410-R3, 425-R3 & Special Plan _C.
Fill= __'. Exc.=__ Cu. Yds.

INFORMATION ONLY **CELL NAME**

CULVERT PIPE

PPE20

Sta. ____+__
DA=__Ac.,Q_ =__cfs, HW=__'
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 with Flared End Sections and
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8, as Stubout. Plan 410-R2 &
Special Plan _C.
Fill= __'. Exc.=__ Cu. Yds.

PPE21

Sta. ___+__
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 for Median Structure,with Flared End Section & Build Bar Grate on Inlet with Outlet in Stubout, 1-Concrete Collar. Plans 410-R3, 413-R1, 425-R3. & Special Plan _C. Fill= __'.

PPE22

Sta. ___+__
Build __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8 as Irrigation Structure on __° Skew w/Siphon Headwalls. Plan 414 & Special Plan _C.
Fill= __'. Exc.=__ Cu. Yds.

If it is an Irrigation Pipe, it needs to be stated in the note.

CULVERT PIPE FOR FLUMES

PPE23

Sta. ___+__ Lt.
Build Concrete Flume, Type __ with ___" x __' Culvert Pipe, Type 3, 4, 5 or 6.
Special Plans _C & _C.

The Culvert Pipe for Flumes need to have a corrugated interior.

SECTION C1 NEW PIPE POLICY NOTES

INFORMATION ONLY | **CELL NAME**

CULVERT PIPE FOR RURAL DRIVE

PPE24

Sta. ___+__ Lt.
Lay __" x __' Driveway Culvert Pipe, Type 2, 3, 4, 5, 6, 7 or 8 & Build Earth Drive (__' Wide) on __% Grade.

"Lay" Driveway Pipes & "Build" Road/Crossroad Pipes.

PPE32

Sta. ___+__ Lt.
Lay __" x __' Driveway Culvert Pipe, Type 2, 3, 4, 5, 6, 7 or 8 & Build Earth Drive (__' Wide) on __% Grade & Surface.
See Sheet 2-S.

If Temporary Culvert Pipe is to be furnished by the State, use the term 'Install' rather than 'Build'. The Designer should check with the District when specifying type.

If Temporary Culvert Pipe is to be Salvaged and Removed, the Designer should check with the District for Culvert Type.

Remove Temporary Road with item Excavation (Established Quantity). Pipe removal is subsidiary to "Excavation Established Quantity".

DO NOT call for the Temporary Pipes to be removed. The removal of pipes will be subsidiary to the obliteration of the Temporary Road. It will be noted in the Spec's if it is to be Salvaged.

CULVERT PIPE FOR CROSSOVERS

PPE25

Sta. ___+__ to
Sta. ___+__
Build __" x _' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8.
Special Plan _C. Fill= __'.

Show Embankment Quantity required to build Temporary Road with Earthwork Note.

Use the term 'Install' if the pipe is to be furnished by the State.

Use the term 'Build' if the pipe is to be furnished by the Contractor.

CULVERT PIPE FOR TEMPORARY ROADS

PPE26

Sta. ___+__
Install Twin __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8. Special Plan _C.
Fill= __'.

Do NOT place build note for Temporary Road surfacing on plans. Details may be shown on the 2-T Sheet.

Normally a Temporary Road will have it's own unique ℄ stationing (i.e. 7000), also it's own plan & profile sheet and has a Typical Section drawn on the 2-T Sheets.

The Temporary Road ℄ is shown, and labeled on the project plan & profile sheet. Temporary Road details should NOT be shown on the mainline plans.

PPE27

Sta. ___+__
Build Twin __" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8. Special Plan _C.
Fill= __'.

Add this note to the mainline plans:

DNST
STD.CEL

For Details not shown see Temporary Road Plan & Profile Sheet

Place Horizontally on Plan Portion of Plan & Profile Sheet.

INFORMATION ONLY	CELL NAME	
		CULVERT PIPE FOR TEMPORARY ROADS
	PPE28	*Sta. ___+__ Build ___" x __' Culvert Pipe, Type 2, 3, 4, 5, 7 or 8, with Flared End Sections, Plan 410-R3. Special Plan _C. Fill= __'. Exc.=__ Cu. Yds. (Extend with __' Temp. Culv. Pipe, Type 2, 3, 4, 5, 7 or 8 on Lt. Special Plan _C. Fill= __'.)*
		CULVERT PIPE FOR SEWERS
Pay quantity for new pipe extends to center of new pipe or M.H., Inlet, etc.	PPE29	*Sta. ___+__ Build ___" x __' Round Equivalent Storm Sewer Pipe, Type 1 with Inlet & Outlet in Curb Inlet. Special Plan _C. Fill= __'.*
Excavation is subsidiary for Sewers, Junction Boxes, Catch Basins, Inlets, Retaining Walls & Steps.	PPE30	*Sta. ___+__ Build ___" x __' Storm Sewer Pipe, Type 1, 7 or 8 with Inlet & Outlet in Curb Inlet. Special Plan _C. Fill= __'.*
Utility Companies can specify the culvert type required.	PPE31	*Sta. ___+__ Build __" x __' Sanitary Sewer Pipe, Type 1, 7 or 8 with Inlet and Outlet in Junction Box. Fill= __'.*

CULVERT PIPE LEGEND

CPL
STD.CEL

CULVERT PIPE LEGEND		
TYPE		DESCRIPTION
1	RCSP	Reinforced Concrete Sewer Pipe
2	RCP	Reinforced Concrete Pipe
3	GCCMP	Galvanized (zinc) Coated Corrugated Metal Pipe
4	ACCMP	Aluminum Coated Corrugated Metal Pipe
5	PCCMP	Polymer Coated Corrugated Metal Pipe
6	HDPE-CI	High Density Polyethylene (corrugated Interior)
7	HDPE-SI	High Density Polyethylene (smooth Interior)
8	PVC	Polyvinyl Chloride Pipe

The Culvert Pipe Legend (CPL) is found in the "STD.CEL" cell library

SECTION C2 CULVERT NOTES

CULVERT NOTES LIST

C01 - Build R.C.P. w/F.E.S.'s
C02 - Build R.C.P. w/F.E.S. on Inlet & Outlet in Conc. Box. Culv.
C03 - R.C.P. - Remove Headwalls, Build Concrete F.E.S.'s
C04 - Build R.C.P. - Class "_" Bedding w/Concrete F.E.S.'s
C05 - Build R.C.P (Includes Jacked R.C.P.)
C06 - Build Jacked R.C.P.
C07 - Build R.C.P. As Median Structure
C08 - Remove Bridge and Build R.C.P.
C09 - Build Round Equivalent R.C.P.
C10 - Build R.C.P. w/F.E.S. on Inlet & Outlet in Conc. Box Culv.
C11 - Extend R.C.P. & Build Concrete F.E.S.
C12 - C.M. Pipe w/Hdwls. - Remove Headwalls & Extend
C13 - Build C.M. Pipe w/Headwall on Inlet & Overhang on Outlet
C14 - Build C.M Pipe w/Headwall on Inlet & Splash Basin on Outlet
C15 - Remove C.M. Pipe w/Drop Inlet
C16 - Build Round Equivalent
C17 - C.M Pipe - Remove and Install Flared End Sections
C18 - Rd. Equiv. Pipe - Remove Headwall and Extend
C19 - Build Culvert Pipe & Hdwls.
C20 - Build Twin Culvert Pipe w/F.E.S.
C21 - Build Twin Culvert Pipe on Skew
C22 - Remove R.C.P. and Build Culvert Pipe
C23 - Build Culvert Pipe w/F.E.S's. & Bar Grate on Inlet
C24 - (Salvage) Remove & Relay C.M. Pipe & Build Conc. Pipe w/F.E.S.'s
C25 - Remove C.M Pipe & Build Conc. Box Culv.
C26 - Conc. Box Culv. - Remove Endwalls & Extend
C27 - Conc. Box Culv. - Plug Ends and Abandon
C28 - Conc. Box Culv. - Sandfill
C29 - Build Conc. Box Culv.
C30 - Conc. Box Culv. - Remove Endwalls & Extend
C31 - Build Concrete Box Culvert w/C.M.P. Stubout
C32 - Build C.M. Pipe w/Metal F.E.S. on Inlet and Outlet in Stubout
C33 - Build R.C.P. w/Conc. F.E.S.'s & Build R.C.P. Stubout
C34 - Build R.C.P. for Median Structure w/Conc. F.E.S. & Outlet in Stubout
C35 - Build R.C.P. as Irrigation Structure
C36 - Build Steel Irrigation Structure (Permit No.)
C37 - Original Design/Alternate Design Conc. Box Culv.
C38 - C.M. Pipe w/Hdwls. - Remove Hdwls. & Build F.E.S.
C39 - Concrete Box Culvert - Remove Endwalls & Extend
C40 - C.M. Pipe w/Hdwls.
C41 - C.M. Pipe w/F.E.S.
C42 - C.M. Pipe w/Drop Inlet
C43 - R.C.P. w/Hdwls.
C44 - R.C.P. w/F.E.S.
C45 - B.B. R.C.P. w/Hdwls.
C46 - Rd. Equiv. C.M. Pipe-Arch w/F.E.S.
C47 - Rd. Equiv. C.M. Pipe-Arch w/Hdwls.
C48 - Rd. Equiv. Culv. Pipe w/F.E.S.
C49 - Rd. Equiv. Culv. Pipe w/Hdwls.
C50 - Rd. Equiv. R.C. Pipe-Arch w/F.E.S.
C51 - Rd. Equiv. R.C. Pipe-Arch w/Hdwls.
C52 - Concrete Box Culvert

REFER TO SHEET I-C1 FOR NEW PIPE POLICY INFORMATION

SECTION C2 CULVERT NOTES

CULVERT NOTES SHEET INDEX

GENERAL INFORMATION

NOTE: If a culvert is silted in, and the district wants the silt removed from the inside of the pipe, it needs to be addressed in the Special Provisions. The designer must note in the 'Comp. File' but not on the project plans. If a channel Cleanout is required at the end of pipe ... show on drainage x-sections.

LETTER DATED 07 FEB 86.....M.FREDRICKSON

When the plans call for a concrete pipe to be jacked, it shall be a minimum of Class 4 pipe.

If multiple pipes are to be jacked thru STABLE SOIL, they should have a minimum of one foot of clearance from outside of pipe to outside of pipe.

If multiple pipes are to be jacked thru UNSTABLE SOIL, they should have a minimum of three foot of clearance from outside of pipe to outside of pipe.

Please note that if flared end sections are used on multiple pipes, additional clearance between pipes may be necessary to allow the flared ends to fit.

LETTER DATED 17 JUL 91.....C. ROSECRANS

If you need to outlet a pipe in another pipe you DO NOT need to call for a "TEE" or "Y" PIPE. It should be handled with a regular note stating "with outlet in __" Pipe."

This is covered in (Standard Special Provisions 721.06 and 722.06 paragraph 6.)

LETTER DATED 28 AUG 95.....E. POPPE

Use of multiple pipes should be avoided where ever possible. However, when they are used, the minimum distance between pipes has been reduced from 3' to 1'. The backfill material for clear spacing of 1' to 3' shall be suitable granular material or flowable fill. Proper indigenous soils may be used for backfill material when spacing is more than 3'. Where mechanical compaction is possible, indigenous soil shall be used with clear spacing of 3' or more.

There are Flared End Sections (FES) available on the market that permits 1' minimum clear spacing between pipes. Headwalls are also available as an acceptable alternate to FES, outside of the clear zone area.

INFORMATION ONLY DATED 01 APR 98.....R. HANSEN

We use a 'Flowable Fill' mixture rather than 'Sand', although the terminology will remain sandfill in Notes and Plans.

- The Plug will be subsidiary to the 'Sandfilling' (Pay Item).
- The Plug sketch is normally shown on the Drainage X-Section Sheet.
  The Plug sketch needs to be labeled 'Subsidiary'
- It is the same sketch as is shown on Plan 428-R2.

  Instead of having the 'X', 'Y' dimensions on the sketch, replace with the true dimensions from the chart that is on Standard Plan 428-R2.

  The Chart will also give you the quantity of concrete required for the Plug, but, you will need to label it 'For Information Only'.

- You do not need weep holes when using a flowable fill.

SECTION C2 CULVERT NOTES

GENERAL INFORMATION

Examples of notes for Pipe-Arch or Elliptical Pipes.

CORRUGATED METAL PIPE

DESIGN

*Sta.**
Build 48" x 72' Round Equivalent C.M. Pipe-Arch Culvert with Metal Flared End Sections. Plan 410-R3.
*Exc.= * Cu.Yds.*

PRELIM

*STA.**
48" x 72' RD. EQUIV. C.M. PIPE-ARCH W/F.E.S.

CONCRETE PIPE

*Sta.**
Build 48" x 72' Round Equivalent Reinf. Concrete Elliptical Pipe with Conc. Flared End Sections. Plan 410-R3.
*Exc.= * Cu.Yds.*

*STA.**
48" x 72' RD. EQUIV. REINF. CONC. ELLIPTICAL PIPE W/F.E.S.

*Sta.**
Build 48" x 72' Round Equivalent Reinf. Concrete Pipe-Arch with Conc. Flared End Sections. Plan 410-R3.
*Exc.= * Cu.Yds.*

*STA.**
48" x 72' RD. EQUIV. REINF. CONC. PIPE-ARCH W/F.E.S.

CULVERT PIPE (OPTIONAL)

*Sta.**
*Build 48" x 72' Round Equivalent Culvert Pipe with Flared End Sections. Plan 410-R3. Exc.= * Cu.Yds.*

*STA.**
48" x 72' RD. EQUIV. CULV. PIPE W/F.E.S.

This chart allows you to convert "SPAN x RISE" to the Round Equivalent dimension (This applies to the Prelim. as well as the Design Notes)

FORMULA: a.) Subtract rise from span. b.) Divide by 2. c.) Add to rise to obtain the equivalent diameter.

TABLE

Pipe-Arch Specification Requirements
Pipe-Arches---2 2/3 by 1/2 In. Corrugations

Pipe-Arch Size In.	Equiv. Dia. In.	Span [1] In.	Rise [1] In.	Min. Corner Radius In.	Max. B^2 In.
17x13	15	17	13	3	5 1/4
21x15	18	21	15	3	6
24x18	21	24	18	3	7 1/4
28x20	24	28	20	3	8
35x24	30	35	24	3	9 1/2
42x29	36	42	29	3 1/2	10 1/2
49x33	42	49	33	4	11 1/2
57x38	48	57	38	5	13 1/2
64x43	54	64	43	6	15
71x47	60	71	47	7	16 1/2
77x52	66	77	52	8	18
83x57	72	83	57	9	20

[1] *Allowable tolerance of + or - 1", or 2% of equivalent circular dia., whichever is greater.*

B^2 *Is defined as the vertical dimension from a horiz. line across the widest portion of the arch to the lowest portion of the base.*

All dimensions are measured from the inside crests of the corrugations.

SECTION C2 CULVERT NOTES

GENERAL INFORMATION

SURVEY/PLAN ACCURACY FOR DRAINAGE PIPES:

Stationing - Nearest Foot
Length of Pipe - Nearest Foot
Skew Angle - Nearest Degree
Elbows - Nearest Degree
Collar w/_° Bend - Nearest Degree

New Construction Notes:

Use Upper and Lower Case letters. Spell out all of the words when possible. (Exceptions include: Lt., Rt., Conc. Collar, Conn. Band, Cu. Yds., Sq. Yds., Lin. Ft.)

Preliminary Notes:

Use all Upper Case letters.
Okay to abbreviate.

PRELIMINARY PIPE NOTE ABBREVIATIONS	
WORD	**ABBREVIATION**
STATION	*STA.*
LEFT	*LT.*
RIGHT	*RT.*
CONCRETE	*CONC.*
CONNECTING	*CONN.*
CORRUGATED METAL	*C.M.*
DRIVEWAY	*DRIVE (PREFERRED) OR DR.*
HEADWALLS	*HDWLS.*
FIELD ENTRANCE	*F.E.*
FLARED END SECTION(S)	*F.E.S.*
REINFORCED	*REINF.*
BROKEN BACK	*B.B.*
DOUBLE BROKEN BACK	*DBL. B.B.*
EQUIVALENT	*EQUIV.*
CULVERT	*CULV.*
ROADWAY	*RDWY.*
BRIDGE	*BR.*
WITH	*W/*
MANHOLE	*M.H.*

SECTION C2 CULVERT NOTES

INFORMATION ONLY **CELL NAME**

Examples of PRELIMINARY PIPE NOTES
(See Section "J" for Existing Bridge note examples)

Preliminary Pipe Notes use all Capital letters.
CO = 4
WT = 1
TX = 10 (100 scale)

If a pipe is a B.B. (Broken Back) or a DBL. B.B. (Double Broken Back), you DO NOT have to call out the ° of Elbow(s).

When describing a pipe under a driveway, we need to say that it is a "DR. PIPE".
If we know the type of material, we need to say it in the note. (i.e. C.M. DR. PIPE or CONC. DR. PIPE)
If the material is unknown, the note should say "DR. PIPE".
Refer to note cell E02 or E05 for a "C.M. DR. PIPE" Preliminary Pipe note. (See Section F, Sheet No. 3-F.)

See Sheet No. 5-D for Preliminary Pipe Note abbreviations.

These Preliminary Pipe Note Cells are starting points for the notes. They may need to be modified to fit the actual situation. The following are some examples of modified notes:

STA. 123+45
24" × 60' REINF. CONC. PIPE
W/INLET IN CURB INLET &
HDWL. ON OUTLET

STA. 123+45
24" × 60' REINF. CONC. PIPE
W/INLET & OULET IN CURB INLET

STA. 123+45
24" × 60' REINF. CONC. PIPE
W/INLET IN CURB INLET &
F.E.S. ON OUTLET

STA. 123+45
24" × 60' REINF. CONC. PIPE
W/INLET IN CURB INLET &
OUTLET IN MANHOLE

STA. 123+45
24" × 60' REINF. CONC. PIPE
W/INLET & OUTLET IN MANHOLE

STA. 123+45
24" × 60' REINF. CONC. PIPE
W/HDWL. ON INLET &
F.E.S. ON OUTLET

C40 STA. ___+__
__" × __' C.M. PIPE W/HDWLS.

C41 STA. ___+__
__" × __' C.M. PIPE W/F.E.S.

C42 STA. ___+__
__" × __' C.M. PIPE W/DROP INLET

C43 STA. ___+__
__" × __' REINF. CONC. PIPE
W/HDWLS.

C44 STA. ___+__
__" × __' REINF. CONC. PIPE
W/F.E.S.

C45 STA. ___+__
__" × __' B.B. REINF. CONC. PIPE
W/HDWLS.

C46 STA. ___+__
__" × __' RD. EQUIV. C.M. PIPE-
ARCH W/F.E.S.

C47 STA. ___+__
__" × __' RD. EQUIV. C.M. PIPE-
ARCH W/HDWLS.

C48 STA. ___+__
__" × __' RD. EQUIV. CULV. PIPE
W/F.E.S.

C49 STA. ___+__
__" × __' RD. EQUIV. CULV. PIPE
W/HDWLS.

C50 STA. ___+__
__" × __' RD. EQUIV. REINF.
CONC. PIPE-ARCH W/F.E.S.

C51 STA. ___+__
__" × __' RD. EQUIV. REINF.
CONC. PIPE-ARCH W/HDWLS.

C52 STA. __+__
__' × __' × ___' CONC. BOX CULV.

SECTION C2 CULVERT NOTES

INFORMATION ONLY

CELL NAME

CONCRETE PIPE

NOTE: Q__, D.A. and H.W. required on all crossroad culvert construction notes.
Q__ - Design Discharge (c.f.s.)
Subscript indicates storm frequency used.
D.A. - Drainage Area in Acres.
H.W. - Design Headwater, depth of flow measured from the flow line of the inlet.

If drainage information cannot be determined, the following note should be used:
Design Discharge (Q) and Drainage Area (D.A.) cannot be determined by office means unless otherwise noted on the plans.

Pay quantity for new pipe, extends to center of intersecting pipe, M.H. or Inlet, etc.

Elbows for a C.M. Pipe do not require Plan 425-R3.

NOTE:
Broken back reference will NOT be made on new pipes.

B.B. - Broken Back
DBL. B.B. - Double Broken Back

A bend on a concrete pipe can be either Vertical or Horizontal. However, DO NOT specify Horizontal or Vertical when calling for an elbow or a collar with a bend.

Always abbreviate Concrete Collars as Conc. Collars.

Class IV or Class V Pipe may be required in areas of excessive fill or under R.R. tracks.
Bedding Sketch is required on Culvert X-Sec.

REQUIRED PIPE LENGTHS UNDER R.R. TRACKS
(Jacking may be required)
℄ R.R. to end of pipe - 15' Minor Tracks
℄ R.R. to end of Pipe - 25' Major Tracks

NEW PIPES - Space dictates whether the note should say "with" or "w/" Flared End Section(s)
EXTEND PIPE - Note should say "Build" Flared End Section(s)

Safety Sloped End Sections (Special Plan 4120 1) can be used in lieu of Flared End Sections.

NOTE:
DO NOT call out the type of material for Flared End Sections if you are using the "New Pipe Policy" ANYWHERE on the project.
DO call out the type of pipe on the "Horse Blanket".

C01

Sta. ___+__
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Reinforced Concrete Pipe with Concrete Flared End Sections.
Plan 410-R3.
Exc.=__ Cu. Yds.

C02

Sta. ___+__
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Reinforced Concrete Pipe with Concrete Flared End Section on Inlet & Outlet in Concrete Box Culvert. Plan 410-R3.
_-__° Elbow. Plan 425-R3.
Exc.=__ Cu. Yds.

C03

STA. ___+__
__" x __' B.B. REINF. CONC. PIPE W/HDWLS.
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Remove Headwalls. Extend __' Lt. & __' Rt. Build Concrete Flared End Sections. Plan 410-R3. 2-Conc. Collars with __° Bend. Plan 425-R3.
Exc.=__ Cu. Yds.

C04

Sta. ___+__
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Reinforced Concrete Pipe, Class _, Class "_" Bedding w/Concrete Flared End Sections.
Plan 410-R3.
Exc.=__ Cu. Yds.

SECTION C2 CULVERT NOTES

INFORMATION ONLY	CELL NAME	
		CONCRETE PIPE
Length of Pipe Partially Jacked. *Class IV or Class V Pipe may be required in areas of excessive fill or under Railroad Tracks.*	C05	Sta. ___+__ Build __" x __' Reinforced Concrete Pipe (Includes __' Jacked R.C.P. Class __). Exc.=__ Cu. Yds.
Full Length of Pipe Jacked. *If R.C.P. Class __ is to be Jacked, it must be stated in the note.*	C06	Sta. ___+__ Build __" x __' Jacked Reinforced Concrete Pipe, Class __. Exc.=__ Cu. Yds.
No Excavation Quantity is required for Median Structures in new embankment. *If you remove pipe from an 'Existing' Median Structure you need to pay for excavation.*	C07	Sta. ___+__ Build __" x __' Reinforced Concrete Pipe as Median Structure w/Concrete Flared End Sections. Plan 410-R3.
Excavation & Concrete Collars are NOT to be paid for when only installing new Flared End Sections directly on existing pipes. *If a Headwall Type is required, please note after the word Headwalls.*	C08	STA. ___+__ _-____' SPAN TIMBER BR. WD. FLOOR, W/___' CLEAR RDWY. D.A.=__Ac.,Q__ =__cfs,H.W.=__' Remove & Build __" x __' Reinforced Concrete Pipe & Headwalls. Special Plan _C. _-__° Elbows. Plan 425-R3. Exc.=__ Cu. Yds.
	C09	Sta. ___+__ D.A.=__Ac.,Q__ =__cfs,H.W.=__' Build __" x __' Round Equivalent Reinforced Conc. Pipe and Headwalls. Special Plan _C. Exc.=__ Cu. Yds.

SECTION C2 CULVERT NOTES

INFORMATION ONLY **CELL NAME**

CONCRETE PIPE

Only pay for a tap if tapping into an existing Inlet, Culvert or Box Culvert.

C10 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Reinforced Concrete Pipe with Concrete Flared End Section on Inlet & Outlet in Concrete Box Culvert. Plan 410-R3, _-__° Elbow. Plan 425-R3, _-Tap. Plan 428-R2.
Exc.=__ Cu. Yds.

When you are connecting to another pipe.

Always abbreviate Concrete Collars as Conc. Collars.
Always abbreviate Connecting Bands as Conn. Bands.

C11 STA. ___+__
__" x __' REINF. CONC. PIPE W/HDWLS.
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Remove Headwall & Extend __' Rt. Build Concrete Flared End Section on Rt.
1-Conc. Collar. Plans 425-R3 & 410-R3.
Exc.=__ Cu. Yds.

CORRUGATED METAL PIPE

If you are phasing the construction of a drainage structure, handle on the drainage cross sections, with dimensions, stating Phase 1, Phase 2.
DO NOT phase the construction notes in the plans.

Show the dimension for final pipe size. Removing temporary pipe and reinstalling the Flared End Section is covered in the Special Provisions.

If you are building a 'Drop Structure' DO NOT specify that in the note. The cross sections will indicate what is happening.

NEW PIPES - Space dictates whether the note should say "with" or "w/" Flared End Section(s)
EXTEND PIPE - Note should say "Build" Flared End Section(s)

Safety Sloped End Sections (Special Plan 4120 1) can be used in lieu of Flared End Sections.

C12 STA. ___+__
__" x __' C.M. PIPE W/HDWLS.
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Remove Headwalls & Extend __' Lt. & __' Rt. Build Metal Flared End Sections.
Plan 410-R3. _-__° Elbow, _-Conn. Bands. (Temporary: Includes __' C.M. Pipe & _-__° Elbow).
Exc.=__ Cu. Yds.

INFORMATION ONLY

CELL NAME

CORRUGATED METAL PIPE

C13 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Corrugated Metal Pipe with Headwall on Inlet & Overhang on Outlet.
Special Plan _C.
Exc.=__ Cu. Yds.

C14 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Corrugated Metal Pipe with Headwall on Inlet. Special Plan _C.
_-__° Elbow & Splash Basin on Outlet, as Shown by Sketch on Sheet 2-N.
Exc.=__ Cu. Yds.

C15 STA. ___+__
__" x __' C.M. PIPE W/DROP INLET. *Remove.*

C16 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,HW..=__'
Build __" x ___' Round Equivalent Corrugated Metal Pipe-Arch Culvert & Headwalls. Special Plan _C.
Exc.=__ Cu. Yds.

INFORMATION ONLY	CELL NAME	
		CORRUGATED METAL PIPE
DO NOT specify the type of material when "Reinstalling" a Flared End Section.	C17	STA. ___+__ __" × ___' C.M. PIPE W/F.E.S. *Remove Flared End Sections & Extend __' Lt. & __' Rt.* *Reinstall Flared End Sections.* *_-Conn. Bands.* *Exc.=__ Cu. Yds.*
If extending Rd. Equiv. pipe, call for Special Conc. Collars, regardless of pipe material. *Safety Sloped End Sections (Special Plan 4120 1) can be used in lieu of Flared End Sections.*		
DO NOT remove 2 ft. of pipe unless the existing pipe end is mitered.	C18	STA. ___+__ __" × ___' RD. EQUIV. C.M. PIPE-ARCH W/HDWLS. *Remove Headwalls & Extend __' Lt. & __' Rt. Build Metal Flared End Sections.* *Plan 410-R3. _-Conc. Collars.* *Plan 425-R3.* *Exc.=__ Cu. Yds.*
	C38	STA. ___+__ __" × ___' C.M. PIPE W/HDWLS. *Remove Headwalls & Extend __' Lt. & __' Rt. Build Metal Flared End Sections.* *Plan 410-R3. _-Conn. Bands.* *Exc.=__ Cu. Yds.*
		OPTIONAL PIPE
If the Headwall Special Plan allows for the construction of different types of Headwalls, the type must be addressed in the note.	C19	*Sta. ___+__* *D.A.=__Ac.,Q__ =__cfs,H.W.=__'* *Build __" x __' Culvert Pipe & Headwalls. Special Plan _C.* *Exc.=__ Cu. Yds.*
Multiple Pipes having Flared End Sections require a sketch showing the dimensions between the pipes. (Usually on drainage cross-sections).	C20	*Sta. ___+__* *D.A.=__Ac.,Q__ =__cfs,H.W.=__'* *Build Twin __" x __' Culvert Pipe w/Flared End Sections.* *Plan 410-R3.* *Exc.=__ Cu.Yds.*

SECTION C2 CULVERT NOTES

INFORMATION ONLY | **CELL NAME**

OPTIONAL PIPE

WHEN DESCRIBING MULTIPLE PIPES:
Use the 'word' for the number of pipes,
NOT the number. (i.e. Twin, Triple, etc.)

C21 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build Twin __" x __' Culvert Pipe on __° Skew & Headwalls. Special Plan _C.
Exc.=__ Cu. Yds.

C22 STA. ___+__
__" x ___' REINF. CONC. PIPE W/HDWLS.
D.A.=__Ac.,Q__ =__Cfs,H.W.=__'
Remove & Build __" x __' Culvert Pipe with Flared End Sections. Plan 410-R3.
Exc.=__ Cu. Yds.

C23 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Culvert Pipe with Flared End Sections & Build Bar Grate on Inlet. Plan 410-R3 & 413-R1.
Exc.=__ Cu. Yds.

Standard Plan 413-R1 (Bar Grate for Flared End Sections) is located in the Standard/Special Plan Book.

Safety Sloped End Sections (Special Plan 4120 1) can be used in lieu of Flared End Sections.

C24 STA. ___+__ LT.
__" x ___' C.M. PIPE
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
(Salvage). Remove & Relay at Sta. ___+__.
Build __" x ___' Concrete Pipe with Flared End Sections. Plan 410-R3.
Exc.=__ Cu.Yds

If a ROADWAY PIPE is going to be removed and reused, or sent to the Maintenance Yard for future use, we should call for (Salvage) in the note.

If pipe is to be reused at a new location, the note should state "Relay __"x __' Pipe from Sta. __+__."

You DO NOT need to specify (Salvage) for DRIVEWAY PIPES, even if pipe is to be kept.

SECTION C2 CULVERT NOTES

INFORMATION ONLY | **CELL NAME**

CONCRETE BOX CULVERTS

SURVEY/PLAN ACCURACY FOR DRAINAGE BOX CULVERTS:
Stationing - Nearest Foot
Height & Width of Box - As Surveyed
Length of Box - As Surveyed
Skew Angle - Nearest Degree

A Box culvert will need a structure number when the span exceeds 20'.

BOX CULVERTS with Bends or Breaks:
- Bends are horizontal
- Breaks are vertical.
You DO NOT have to call out the ° of Bend or Break.

C25

STA. ___+__
__" × ___' C.M. PIPE W/HDWLS.
D.A.=__Ac.,Q__=__cfs,H.W.=__'
Remove. Build __' x __'
x ___' Concrete Box Culvert
on __° Skew. Plan __.
__- Control Joints.
Plan 404-R2. Fill=__'.
Exc.=__ Cu. Yds.

When describing a Box Culvert in the Preliminary Pipe Note, ALWAYS use the term "Wingwalls" regardless if the wingwalls are straight or flared.
Keep in mind that not all Box Culverts have wingwalls. Some are just Box Culverts.
A Box Culvert will NEVER have Headwalls. Likewise a Culvert Pipe will NEVER have Wingwalls.

When removing these walls, use the term "Endwalls".
Example:
"Remove Endwalls & 2' of Barrel."
The term ENDWALLS in this case applies to straight wall, wingwalls and the parapet.
(All walls at the end of the Box Culvert)

C26

STA. ___+__ #(S_____)
TWIN __' × __' × ___' CONC. BOX CULV. ON __° SKEW W/WINGWALLS.
D.A.=__Ac.,Q__=__cfs,H.W.=__'
Remove Endwalls & __' of Barrel. Extend __' Lt. & __' Rt. _-__° Bend.
Plans ___ & 403-R2.
Fill=__'. Exc.=__ Cu. Yds.

If only removing Endwalls & 2' of Barrel on one side, the note should read:
"Remove Endwalls on Rt. (or Lt.) & 2' of Barrel."

C39

STA. ___+__ #(S_____)
TWIN __' × __' × ___' CONC. BOX CULV. ON __° SKEW W/WINGWALLS.
D.A.=__Ac.,Q__=__cfs,H.W.=__'
Remove Endwalls & __' of Barrel. Extend __' Lt. _-__° Bend. Plans ___ & 403-R2. Fill=__'.
Exc.=__ Cu. Yds.

If a Box Culvert requires a Conrete Apron, you do not need to call it out in the Construction Note. The Special Plan will show how the Box Culvert is to be built.

Note C27:
If the size of the Barrel(s) is not covered in the chart that is located on Standard Plan 428-R2, you will need to have a Special Plan made up by the Bridge Dept.

Note C28:
If a Sandfill Sketch is to be shown on the Drainage X-Sections, label subsidiary. You do not need to refer to the Sketch in the note.

If there is not room for the Sandfill Sketch on the drainage X-Sections, the sketch may be placed on the 2-N Sheet, but it must be noted 'See Sketch on Sheet 2-N'.

Sandfill note example:

Remove Endwalls.
Sandfill __Cu. Yds.
Plug Ends and Abandon.
Plan 428-R2.

NO SANDFILL

C27

STA. ___+__ #(S_____)
__' × __' × ___' CONC. BOX CULV.
Plug Ends & Abandon.
Plan 428-R2.

SANDFILL

C28

STA. ___+__ #(S_____)
__' × __' × ____' CONC. BOX CULV.
Plug Ends & Sandfill.

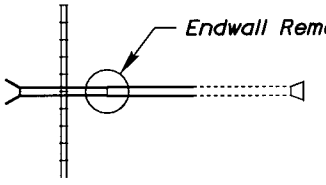
INFORMATION ONLY

CELL NAME

Example of a Railroad Structure to a Roadway Structure:

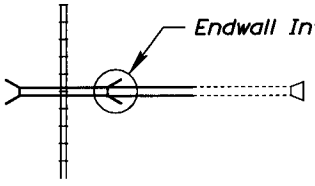
This note should be boxed & leadered.

STA. ___+__: _' LT.
__' x __' x ___' CONC. RR BOX CULV.
W/ENDWALLS.
Remove Endwalls.



This note should NOT be boxed & leadered.
If you do NOT remove the endwalls, but will be doweling the Highway structure to the Railroad structure.

STA. ___+__: _' LT.
__' x __' x ___' CONC. RR BOX CULV.
W/ENDWALLS.



Refer to: Letter dated 27 JUN 85 'CONTRACT GROUPS FOR CULVERTS'.

Make no deduction for concrete in Box Culverts where stubouts are built.

CONCRETE BOX CULVERTS

C29 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __' x __' x __'
Concrete Box Culvert.
Plan ___. Fill=__'.
Exc.=__ Cu. Yds.

C30 STA. ___+__ #(S_____)
__' x __' x ___' CONC. BOX CULV.
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Remove Endwalls & __' of Barrel. Extend __' Lt. & __' Rt. Plan ___ & Special Plan _C. ___'Fill.
Exc.=__ Cu. Yds.

STUBOUT PIPES

C31 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __' x __' x __'
Concrete Box Culvert with __" x __' Corrugated Metal Pipe Stubout. Plan ___.
Fill=__'. Exc.=__ Cu. Yds.

C32 *Sta. ___+__ Lt. to*
Sta. ___+__ Lt.
Build __" x ___' Corrugated Metal Pipe with Metal Flared End Section on Inlet & Outlet in Stubout. Plan 410-R3.
_-__° Elbow. _-Conn. Bands.
Exc.=__ Cu. Yds.

INFORMATION ONLY

CELL NAME

STUBOUT PIPES

C33 *Sta. ___+__*
D.A.=__Ac.,Q__ =__cfs,H.W.=__'
Build __" x __' Reinforced Concrete Pipe with Concrete Flared End Sections.
Plan 410-R3 & Build __" x __' Reinforced Concrete Pipe Stubout. Exc.=__ Cu. Yds.

C34 *Sta. ___+__*
Build __" x ___' Reinforced Concrete Pipe for Median Structure w/Conc. Flared End Section & Build Bar Grate on Inlet. Outlet in Stubout.
Plan 410-R3 & 413-R1.

MISCELLANEOUS STRUCTURES

C35 *Sta. ___+__*
Build __" x __' Reinforced Concrete Pipe as Irrigation Structure on __° Skew w/Siphon Headwalls. Plan 414 & Special Plan __C.
Exc.=__ Cu. Yds.

If it is an Irrigation Pipe it needs to be stated in the note.

C36 *Sta. ___+__ (Permit No. __)*
Build __" x __' Steel Irrigation Structure with __" x __' Steel Casting.
_-__° Elbow & _-Coupling Connectors.
Exc.=__ Cu. Yds.

(Permit No. __) Refer to permit issued by Maintenance Division.

INFORMATION ONLY **CELL NAME**

MISCELLANEOUS STRUCTURES
(ALTERNATE DESIGN NOTE)

C37

Sta. ___+__
D.A.=__Ac.,Q__=__cfs,H.W.=__'
ORIGINAL DESIGN:
Build __' x __' x __' Conc. Box Culvert. Special Plan _C. Fill=__'. Exc.=__ Cu. Yds.
ALTERNATE DESIGN:
Build __' x __' x __' Precast Concrete Box Culvert w/Conc. End Sections.
Special Plan _C & _C. Fill=__'. Exc.=__ Cu. Yds.

Sometimes Bridge Dept. will make their Std. Plan into a Special Plan. CHECK IT OUT.

If you use a Poured-in-Place End Section, specify the appropriate Standard Plan. If either a Poured-in-Place or a Precast End Section will do, Specify both plan numbers.

SECTION D

CONCRETE NOTES LIST

D01 - Build Pavement Approach Slab Type"_"
D02 - Build Pavement Approach Slab
D03 - Build Concrete Flume Type "_"
D04 - Build Concrete Flume Type "_" w/C.M.P.
D05 - Remove and Build Concrete Drive
D06 - Build Concrete Drive
D07 - Drop Curb for Driveway
D08 - Build Concrete Terrace Steps
D09 - Build Reinforced Concrete Steps
D10 - Build Concrete Retaining Wall
D11 - Build Concrete Ditch Lining
D12 - Build Concrete Island Nose
D13 - Remove Pavement and Build Concrete Island Nose
D14 - Build Concrete Median Surfacing
D15 - Remove and Build Concrete Sidewalk
D16 - Build Curb Ramp
D17 - Build Concrete Curb, Type "_"
D18 - Build Concrete Median Curb
D19 - Build Concrete Barrier Curb
D20 - Build Combination Concrete Curb and Gutter
D21 - Build Concrete Base Course
D22 - Build Concrete Pavement Repair
D23 - Build Pavement Repair
D24 - Build Concrete Pavement
D25 - Build MSE Wall
D26 - Build Dowelled Concrete Pavement
D27 - Build Asphalt Patching of Concrete Pavement

CONCRETE NOTES SHEET INDEX

SECTION D CONCRETE NOTES

INFORMATION ONLY | **CELL NAME**

D01

One note needed at each end of Bridge (or as required). One note cannot cover both slabs.

The note may call out for a type of Bridge Approach Section if more than one type is detailed on the plan.

Sta. ___+__ to
Sta. ___+__
Build Pavement Approach Slab Type __, (__' Wide).
Special Plan _C.

D02

The Bridge Approach Slabs may be part of the bridge plan, however you still need the Pavement Approach Slab note for each end of the bridge.
Special Plan or Special Plan C to match Bridge Naming conventions.

Sta. ___+__ to
Sta. ___+__
Build Pavement Approach Slab.
Special Plan _C.

D03

There are 7-Types of Flume Special Plans that are approved. Flume Types IV, V, VI, VII & VIII are 2-sheet plans. The second sheet is similar to an Area Inlet. Although Flume Types IV, V, VII & VIII show Elbows on the Special Plan, they are not called for in the construction note. They should be shown in Comp's. and also on Cross Sections, if applicable. (FLUME TYPE III HAS BEEN VOIDED)

Sta. ___+__ Lt.
Build Concrete Flume, Type _.
L=__'. Special Plan _C.

FLUME TYPE	SPECIAL PLAN NUMBER
I	4341-1
II	4342-1
IV	4344-1
V	4345-1
VI	4346-1
VII	4347-1
VIII	4348-1

D04

Sta. ___+__ Lt.
Build Concrete Flume, Type _ w/__" x ___' Corrugated Metal Pipe. Special Plan _C.

D05

Note D05 use for Urban Drives only

For Urban jobs show normal driveway geometrics on plans.

Sta. ___+__ Lt.
Remove __ Sq. Yds. of Driveway & Build __ Sq. Yds. of Concrete Drive.
Plan 301-R8.

D06

Sta. ___+__ Lt.
Build __ Sq. Yds. of Concrete Drive. Plan 301-R8.

D07

Note D07 is used at driveway locations when building Combination Curb & Gutter in front of the driveway. Stationing for Combination Concrete Curb & Gutter can continue through driveway locations.

Sta. ___+__ to
Sta. ___+__ Lt.
Drop Curb for Driveway.
Plan 301-R8.

INFORMATION ONLY	CELL NAME	
Excavation Subsidiary. Obtain plan from Bridge Dept.	D08	*Sta. ___+__ Lt.* *Build __' Concrete Terrace Steps. __-Risers, __ Lin. Ft. of Handrail. Special Plan _C.*
Obtain plan from Bridge Dept.	D09	*Sta. ___+__ Lt.* *Build Reinforced Concrete Steps. __' Wall, __-Risers, __ Lin. Ft. of Handrail. Special Plan _C.*
(*) Define Level or Surcharge Surface. *Excavation is Subsidiary.* *Obtain plan from See Bridge Dept.*	D10	*Sta. ___+__ to* *Sta.___+__* *Build __ Lin. Ft. of __' Concrete Retaining Wall, __ Surface. __-Entrance Corners and __-Wall Corners. Special Plan _C.*
	D25	*Sta. ___+__ to* *Sta.___+__ Rt.* *Build MSE Wall.* *Special Plan _C.*
Remove 'Ditch Liner' by Sq. Yds. *Build 'Ditch Lining' by Lin. Ft.*	D11	*Sta. ___+__* *Build __ Lin. Ft. of Concrete Ditch Lining with Type "__" Inlet. Plan 455.*
Nose integral and subsidiary with Concrete Pavement.	D12	*Sta. ___+__ to* *Sta. ___+__* *Build __' Concrete Island Nose. Plan 301-R8.*
	D13	*Sta. ___+__ to* *Sta. ___+__* *Remove __ Sq. Yds. of Pavement & Build Concrete Island Nose. Plan 301-R8.*

INFORMATION ONLY	CELL NAME	
	D14	Sta. ___+__ to Sta. ___+__ Build __ Sq. Yds. of Concrete Median Surfacing. Plan 301-R8.
Do not specify type of material when removing walk. *State the width of the New Sidewalk in the note.*	D15	Sta. ___+__ to Sta. ___+__ Lt. Remove __ Sq. Yds. of Walk & Build __ Sq. Yds. of __' Concrete Sidewalk. Plan 301-R8.
Curb Ramps are subsidiary to 'SIDEWALK CONSTRUCTION' *Curb Ramp Areas (Sq. Yds.) included in Sidewalk quantity.*	D16	Sta. ___+__ Rt. Build Curb Ramp, Type __. Special Plan _C.
When new Conc. Pavement is placed adjacent to existing concrete, it is necessary to install Tie Bars. *It is <u>NOT</u> necessary to show the Tie Bars in plan view. (Sheet 2-T is sufficient).* *<u>DO NOT</u> place 'INSTALL TIE BAR' note on the plans.* *But, you <u>DO</u> have to submit a Tie Bar summary of quantities for the 2-S Sheet.*	D17	Sta. ___+__ to Sta. ___+__ Build __ Lin. Ft. of Concrete Curb, Type __. Plan 301-R8.
	D18	Sta. ___+__ to Sta. ___+__ Build __ Lin. Ft. of Concrete Median Curb. Plan 301-R8.
	D19	Sta. ___+__ to Sta. ___+__ Rt. Build __ Lin. Ft. of Concrete Barrier Curb. Plan 301-R8.
COMBINATION CONCRETE CURB & GUTTER *Min. width = 2'-0", Max. width = 3'-6"* *NO joints. . . NO steel. . . NO subgrade Prep.*	D20	Sta. ___+__ to Sta. ___+__ Rt. Build __ Lin. Ft. of __' Combination Concrete Curb & Gutter. Plan 301-R8.

SECTION D CONCRETE NOTES

INFORMATION ONLY **CELL NAME**

'CONCRETE BASE COURSE'
With curb. . .joints ARE required
W/O curb. . .joints are NOT required.
If built in more than 1-longitudinal pour, you must show the additional longitudinal joint and the Tie Bars on the 2-T Sheet.

DO NOT call out widening in the note. Yes you may be widening the pavement, but the 'Pay Item' is Base Course.

D21 *Sta. ___+__ to*
Sta. ___+__ Rt.
Build __ Sq. Yds. of Conc. Base Course. Plan 301-R8.

FOR PATCHING CONCRETE WITH CONCRETE:

1-note for each lane of traffic.

2-5 Sq. Yds.= Type "A"
6-15 Sq. Yds. = Type "B"
over 15 Sq. Yds. = Type "C"

NOTE: A removal note is not needed (Subsidiary).

D22 *Sta. ___+__ to*
Sta. ___+__ Lt.
Build __ Sq. Yds. of Concrete Pavement Repair, Type __.

FOR PATCHING CONCRETE WITH ASPHALT:

1-note for each lane of traffic.

2-5 Sq. Yds.= Type "A"
6-15 Sq. Yds. = Type "B"
over 15 Sq. Yds. = Type "C"

D23 *Sta. ___+__*
Build __ Sq. Yds. of Pavement Repair.

FOR PATCHING ASPHALT WITH ASPHALT:

Paid for as Equipment Rental.

When you have this situation, a note is NOT needed on the plans. However, the 2-S Sheet will have a quantity for 'Asphaltic Concrete (or Bituminous) for Patching.'

D27 *Sta. ___+__ to*
Sta. ___+__ Lt.
Build __ Sq. Yds. of Asphalt Patching of Concrete Pavement, Type __.

D24 *Sta. ___+__ to*
Sta. ___+__
Build __ Sq. Yds. of Concrete Pavement.
See Sheet 2-T.

D26 *Sta. ___+__ to*
Sta. ___+__
Build __ Sq. Yds. of Dowelled Concrete Pavement.
See Sheet 2-T.

SECTION E RURAL DRIVE AND INTERSECTIONS NOTES

RURAL DRIVES & INTERSECTONS NOTES LIST

E01 - Lay Driveway Pipe & Build Earth Drive
E02 - Driveway Pipe - Remove, Relay & Extend & Build Earth Drive
E03 - Build Earth Drive & Surface
E04 - Build Earth Drive
E05 - Remove & Relay C.M. Drive Pipe
E06 - Relay C.M. Drive Pipe
E07 - Surface 4-Way Intersection
E08 - Surface Driveway
E09 - Build 4-Way Intersection
E10 - Build __ Tons of Gravel Surface Course
E11 - Build __ Cu. Yds. of Gravel Surface Course
E12 - Surface 3-Way Intersection
E13 - Build 3-Way Intersection
E14 - Build __Tons of Crushed Rock Surface Course
E15 - Build __Cu. Yds. of Crushed Rock Surface Course

SECTION E RURAL DRIVE AND INTERSECTIONS NOTES *SHEET NO. 2-E*

RURAL DRIVES & INTERSECTIONS NOTES SHEET INDEX

SECTION E RURAL DRIVE AND INTERSECTIONS NOTES

INFORMATION ONLY	CELL NAME	
Use Note E01 for Rural Drives.	E01	*Sta. ___+__ Lt.* *Lay __" x __' Driveway Culvert Pipe & Build Earth Drive (__' Wide) on __% Grade & Surface.* *See Sheet 2-S.*
Concrete, Asphalt & Gravel are all types of surfacing. *The width shown in the note is for an Earth Drive. The 2-S Sheet will show the width of the surfacing (Normally 24').*		
"Lay" Driveway Pipes & "Build" Road/Crossroad Pipes.	E02	STA. ___+__ RT. __" x __' C.M. DR. PIPE *Remove. Relay & Extend __', 1-Conn. Band & Build Earth Drive (__' Wide) on __% Grade.*
	E03	*Sta. ___+__ Lt.* *Build Earth Drive (__' Wide) on __% Grade & Surface.* *See Sheet 2-S.*
	E04	*Sta. ___+__ Lt.* *Build Earth Drive (__' Wide) on __% Grade for __' then __%.*
You DO NOT need to note (Salvage) when "Removing and Relaying" a driveway pipe.	E05	STA. ___+__ RT. __" x __' C.M. DR. PIPE *Remove and Relay at Sta. ___+__ Rt.*
	E06	*Sta. ___+__ Rt.* *Relay __" x __' Corrugated Metal Drive Pipe from Sta. ___+__ Lt., Extend __' 1-Conn. Band & Build Earth Drive (__' Wide) on __% Grade.*
"Surface Intersection" notes are for Resurfacing Projects.	E12	*Surface 3-Way Intersection.* *See Sheet 2-S.*
	E07	*Surface 4-Way Intersection.* *See Sheet 2-S.*

SECTION E RURAL DRIVE AND INTERSECTIONS NOTES

INFORMATION ONLY **CELL NAME**

"Build Intersection" notes are for Full Grading Projects, or Intersections that are new.

SURFACE COURSE:
Paid by the Ton for Districts 1, 2 & 3.
Paid by Cu. Yds. for the other Districts.

If it is intended for the contractor to spread the gravel, the designer must include a note with the Comp. File for a Special Provision to be written.

E08 *Sta. ___+__ Rt.*
Surface Driveway. See Sheet 2-S.

E13 *Build 3-Way Intersection. See Sheet 2-S.*

E09 *Build 4-Way Intersection. See Sheet 2-S.*

E10 *Sta. ___+__ to*
Sta. ___+__
Build __ Tons of Gravel Surface Course.

E11 *Sta. ___+__ to*
Sta. ___+__
Build __ Cu. Yds. of Gravel Surface Course.

E14 *Sta. ___+__ to*
Sta. ___+__
Build __ Tons of Crushed Rock Surface Course.

E15 *Sta. ___+__ to*
Sta. ___+__
Build __ Cu. Yds. of Crushed Rock Surface Course.

SECTION F

MEDIAN CROSSOVERS, MAINT. TURNAROUNDS & TEMPORARY ROADS NOTES LIST

F01 - Build Corrugated Metal Pipe
F02 - Build Median Crossover
F03 - Surface Maintenance Turnaround
F04 - Build Maintenance Turnaround
F05 - Install Twin Corrugated Metal Pipe
F06 - Build Twin Corrugated Metal Pipe
F07 - Build C.M. Pipe w/Temp. C.M. Pipe Extension

MEDIAN CROSSOVERS, MAINT. TURNAROUNDS & TEMPORARY ROADS NOTES SHEET INDEX

SECTION F MEDIAN CROSSOVERS, MAINTENANCE TURNAROUNDS AND TEMPORARY NOTES

INFORMATION ONLY

The Special Provisions will tell how to pay for the removal of the surfacing and the embankment.

Need Excavation of established quantity for Temporary Road removal shown in Earthwork notes.
The Comps. need to state removal quantity and whether or not it is to be removed by milling.

TEMPORARY SURFACING - (PHASING)

"Temporary Surfacing" includes Asphalt or Concrete (Contractors Option).

The removal of temporary surfacing is included in the cost of placing the Temporary Surfacing.
(Same contractor that put it in - removes it)

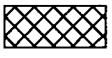
NOTE: It is only Temporary if it is removed under the same project as it was built.

LEGEND

Temporary Surfacing

Show Construction with symbology and legend.
The symbol selected must be unique to project.
Typical Section is NOT required if this Legend is used.
A Construction Note on plans is NOT required.

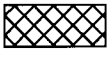
LEGEND



__" Temporary Asphaltic Concrete Pavement (on prepared subgrade) (or Concrete whichever is specified)

Typical Section is required if this Legend is used.
A Construction Note on plans is NOT required.

LEGEND



Temporary Asphaltic Concrete Pavement (or Concrete whichever is specified)

SECTION F MEDIAN CROSSOVERS, MAINTENANCE TURNAROUNDS AND TEMPORARY NOTES

INFORMATION ONLY **CELL NAME**

CROSSOVERS

F01 *Sta. ___+__ to*
Sta. ___+__
Build __" x __' Corrugated Metal Pipe. Special Plan _C.

Median Drainage & Crossovers:
If the pipe is to be furnished by the State, use the term "Install" rather than "Build"

F02 *Sta. ___+__*
Build Median Crossover.
Special Plan _C.

Special Plan _C and/or See Sheet 2-T.

MAINTENANCE TURNAROUNDS

F03 *Sta. ___+__*
Surface Maintenance Turnaround. See Sheet 2-T.

When only surfacing an existing Maintenance Turnaround.

F04 *Sta. ___+__*
Build Maintenance Turnaround.
See Sheet 2-T.

When Building a new Maintenance Turnaround (Includes Surfacing)

SECTION F MEDIAN CROSSOVERS, MAINTENANCE TURNAROUNDS AND TEMPORARY NOTES

INFORMATION ONLY

Use the term 'Install' if the pipe is to be furnished by the State.

Use the term 'Build' if the pipe is to be furnished by the Contractor.

Remove Temporary Road with item Excavation (Established Quantity). Pipe removal is subsidiary to "Excavation Established Quantity".

DO NOT call for the Temporary Pipes to be removed. The removal of pipes will be subsidiary to the obliteration of the Temporary Road. It will be noted in the Spec's if it is to be Salvaged.

Show Embankment Quantity required to build Temporary Road with Earthwork Note.

Do NOT place build note for Temporary Road surfacing on plans. It is covered on the 2-T Sheet.

Normally a Temporary Road will have it's own unique ℄ stationing (i.e. 7000), also it's own plan & profile sheet and has a Typical Section drawn on the 2-T Sheets.

The Temporary Road ℄ is shown, and labeled on the project plan & profile sheet. Temporary Road details should NOT be shown on the mainline plans.

Add this note to the mainline plans:

DNST
STD.CEL

For Details not shown see Temporary Road Plan & Profile Sheet

Place Horizontally on Plan Portion of Plan & Profile Sheet.

Show the dimension for final pipe size. Removing Temp. Pipe and reinstalling the F.E.S. is covered in the Special Provisions.

If you are phasing the construction of a drainage structure, handle on the drainage cross sections, with dimensions, stating Phase 1, Phase 2.
DO NOT phase the construction notes in the plans.

EXAMPLE: (EXTENDING EXISTING PIPE)
TEMPORARY ROAD (W/TEMP. PIPE)
(SEE NOTE C12)

STA. ____+_____
__"X ____' C.M. PIPE W/HDWLS.
D.A.=__Ac.,Q__=__cfs,H.W.=__'
Remove Headwalls & Extend
___' Lt. & ___' Rt. Build
Metal Flared End Sections,
Plan 410-R3. _-__° Elbow,
_-Conn. Bands. (Temporary:
Includes __' C.M. Pipe &
_-__° Elbow)
Exc.=__ Cu. Yds.

CELL NAME

TEMPORARY ROADS

F05
Sta. __+__
Install Twin __" x __'
Corrugated Metal Pipe.

F06
Sta. __+__
Build Twin __" x __'
Corrugated Metal Pipe.

F07
Sta. ___+__
Build __" x __' Corrugated Metal Pipe w/Metal Flared End Sections. Plan 410-R3. Exc. = __ Cu. Yds. (w/__' Temp. C.M. Pipe Extension, _-Conn. Band).

SECTION G

SEWER NOTES LIST

G01 - Build Round Equivalent Reinforced Concrete Sewer Pipe
G02 - Build Reinforced Concrete Sewer Pipe
G03 - Build Junction Box
G04 - Build Curb Inlet
G05 - Build Manhole w/Cast Iron Cover
G06 - Adjust Manhole to Grade
G07 - Build Median Inlet
G08 - Build Area Inlet w/Grate
G09 - Build Area Inlet w/Pedestrian Guard
G10 - Adjust Manhole to Grade
G11 - Adjust Water Valve to Grade
G12 - Reconstruct Manhole
G13 - Repair Inlet Top
G14 - Build Area Inlet w/Bar
G15 - Build Manhole Type "_"

SEWER NOTES SHEET INDEX

SECTION G SEWER NOTES

INFORMATION ONLY	CELL NAME	
Refer to Sheet 4-C for Pipe-Arch to Round Equivalent conversion table and example notes.	G01	*Sta. ___+__ Build __" x __' Round Equivalent Reinforced Concrete Sewer Pipe w/Inlet & Outlet in Curb Inlet.*
Excavation is subsidiary for Sewers, Junction Boxes, Catch Basins, Inlets, Retaining Walls & Steps.	G02	*Sta. ___+__ Build __" x __' Reinforced Concrete Sewer Pipe w/Inlet in Curb Inlet & Outlet in Junction Box.*
Keep Pipe notes separate from Junction Box notes.	G03	*Sta. ___+__ Build Junction Box, Plan 443-R6. X = __'-__", Y = __'-__" x Y_1 = __'-__"*
Junction Box may require either a Special Plan or a Standard Plan.	G04	*Sta. ___+__ Build Curb Inlet. Plan 443-R6. X = __'-__", A = __'-__", Y = __'-__"*
This example indicates the Type of Manhole is optional. The Type of Cast Iron Cover will be specified as: Type A - (Storm Sewer) or Type B (Sanitary Sewer)	G05	*Sta. ___+__ Build Manhole w/Cast Iron Cover, Type __, Frame & Flange. Plan 435-R1.*
Telescopic Type: Frame & Flange, Type I Non-Telescopic Type: Frame only, Type II Ring Type III : Normally used outside of pavement.	G06	*Sta. ___+__ Adjust Manhole to Grade & Build Cast Iron Cover, Type __ Frame & Flange. Plan 435-R1.*
TYPES OF MANHOLE: "A", "B" AND "C" Types "A" & "B" are round Type "C" is square *Use Type of Manhole only if you want to eliminate the Contractors option.*	G15	*Sta. ___+__ Build Manhole, Type _ with Cast Iron Cover, Type _ & Frame, Type _. Plan 435-R1.*

INFORMATION ONLY **CELL NAME**

G10 *Sta. ___+__*
Adjust Manhole to Grade.

G11 *Sta. ___+__*
Adjust Water Valve to Grade.

G12 *Sta. ___+__*
Reconstruct Manhole.
Plan 435-R1.

G13 *Sta. ___+__*
Repair Inlet Top.
Special Plan _C.

G07 *Sta. ___+__*
Build Median Inlet.
Special Plan _C. X = __'-__"

Obtain Median Inlet Special Plan from Bridge Dept.

G08 *Sta. ___+__*
Build Area Inlet with Grate,
Type __. Special Plan _C.
X= __'-__"

Obtain these Special Plans from Drafting Dept.:
Special Plan 4330 1 "Area Inlet with Bar"
Special Plan 4333 1 "Area Inlet with Grate"

G14 *Sta. ___+__*
Build Area Inlet with Bar.
Special Plan _C. X= __'-__"

G09 *Sta. ___+__*
Build Area Inlet w/Pedestrian
Guard. Special Plan _C.

SECTION H REMOVAL NOTES

SECTION H

REMOVAL NOTES LIST

H01 - Remove Fence
H02 - Remove Discharge Structure
H03 - Remove Guardrail (Sta.)
H04 - Remove Concrete Ditch Liner
H05 - Remove Driveway
H06 - Remove Asphalt Surface
H07 - Remove Concrete Median Surfacing
H08 - Remove Pavement
H09 - Remove Walk
H10 - Remove Combination Curb and Gutter
H11 - Remove Curb See Sheet 2-T
H12 - Remove Curb
H13 - Remove Guardrail (Sta. to Sta.)
H14 - Remove Guard Posts
H15 - Clear Tract
H16 - Remove Building
H17 - Abandon Well
H18 - Remove Curb Inlet
H19 - Remove Retaining Wall
H20 - Remove __ Lin. Ft. of Retaining Wall
H21 - Remove __ Lin. Ft. of Concrete Barriers
H22 - Remove Concrete Pavement & Crush
H23 - Remove Sign, Post & Footing

REMOVAL NOTES SHEET INDEX

SECTION H REMOVAL NOTES

INFORMATION ONLY	CELL NAME	
The Existing Topography should indicate the type of Fence (such as Wood, Chain Link, or Ornamental) IF it requires a special removal note.	H01	*Sta. ___+__* *Remove __ Lin. Ft. of Fence.*
Discharge Structure is removed as 1-each. This note can be used to remove "Approach Slab Drains". It can include the Inlet and also the Outlet Pipe. The Crossraod Pipe needs to be removed separately.	H02	STA. ___+__ DISCHARGE STRUCTURE. *Remove.*
Remove Ditch 'LINER' by Sq. Yds. Build Ditch 'LINING' by Lin. Ft.	H04	*Sta. ___+__ to* *Sta. ___+__ Lt.* *Remove __ Sq. Yds. of Concrete Ditch Liner.*
For removing Concrete or Asphalt driveway <u>DO NOT</u> specify the type of material to be removed. If asphalt can be buried in vicinity of driveway, a note is <u>NOT</u> required (Full Grading or Safety Section). *NOTE: Removing Earth Drives does NOT require a note.*	H05	*Sta. ___+__* *Remove __ Sq. Yds. of Driveway.*
This applies to Existing Asphalt. If asphalt surface is to be removed by 'Milling' it will be shown on the 2-T sheet and addressed in the Special Provisions. In this case a removal note on the Plans is <u>NOT</u> required. *For the exception to this note, see Temporary Road Removal information in Section F.*	H06	*Sta. ___+__* *Remove __ Sq. Yds. of Asphalt Surface.*
Asphalt Median surfacing is removed as 'ASPHALT SURFACE'.	H07	*Sta. ___+__* *Remove __ Sq. Yds. of Concrete Median Surfacing.*
On a rural project, you do not need a note if all of the roadway is being removed, nor do you need to cross hatch the roadway. But, if the roadway is being partially removed, or various segments are being removed, a note is required and the roadway area should show removal cross hatching.	H08	*Sta. ___+__ to* *Sta. ___+__* *Remove __ Sq. Yds. of Pavement.*
'PAVEMENT' includes Concrete, Asphalt & Brick. If 'BRICK SURFACE' is to be removed a Special Provision is required. Do NOT show the thickness of the pavement to be removed on the plans. (Intergral Curb can also be removed with the Rdwy. Pvm't)	H22	*Sta. ___+__ to* *Sta. ___+__* *Remove __ Sq. Yds. of Concrete Pavement & Crush.*
	H09	*Sta. ___+__ to* *Sta. ___+__ Lt.* *Remove __ Sq. Yds. of Walk.*

SECTION H REMOVAL NOTES

INFORMATION ONLY | **CELL NAME**

H10 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove __ Lin. Ft. of
Combination Curb and Gutter.

REMOVING CURB ONLY:

If the curb is integral with pavement, show Curb Removal Sketch on sheet 2-T.
For examples, see the 'CRD' cell from the 'Typical.cel' cell library or Standard Detail 1380 5.

Note:
Integral Curb can be removed with the Roadway Pavement and shall not be removed separately.

H11 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove __ Lin. Ft. of Curb.
See Sheet 2-T.

If the curb is not integral w/pavement a removal sketch is <u>NOT</u> required.

H12 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove __ Lin. Ft. of Curb.

H03 *Sta. ___+__*
Remove __ Lin. Ft. of
Guardrail.

Note H03: Use the Station of the Structure when removing the entire guardrail installation.

Will the guardrail be reset?
Will it be stockpiled at the Maintenance Yard?
IF SO, YOU NEED TO SAY "Remove and Salvage" in the note.
Refer to Notes B08, B09 & B12.

H13 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove __ Lin. Ft. of
Guardrail.

Removing guardrail can also be from Station to Station.

H14 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove __-Guard Posts.

NO GUARDRAIL - JUST POSTS
Define the number of Guard Posts to be removed.

H15 *Sta. ___+__ to*
Sta. ___+__ Lt.
Clear Tract No. ____.

Keep "Clear Tract" note separate from "Remove Building" note.

H16 *Sta. ___+__ to*
Sta. ___+__ Lt.
Remove Building.

SECTION H REMOVAL NOTES

INFORMATION ONLY	CELL NAME	
	H17	Sta. ___+__ Lt. Abandon Well.
When removing a Curb Inlet, if a pipe is to be abandoned, you DO NOT need to call for the Plug & Abandon Special Plan, as it is subsidiary. See Std. Spec Book Section 203.	H18	Sta. ___+__ Lt. Remove Curb Inlet.
Paid for as 1-Each when removing the entire wall.	H19	Sta. ___+__ to Sta. ___+__ Lt. Remove Retaining Wall.
Paid for as Lin. Ft. when partially removing the wall.	H20	Sta. ___+__ to Sta. ___+__ Lt. Remove __ Lin. Ft. of Retaining Wall.
FOR INFORMATION ONLY When Barriers were placed in Lieu of Guardrail on a previous project. (Note H21)	H21	Sta. ___+__ to Sta. ___+__ Lt. Remove __ Lin. Ft. of Concrete Barriers.
	H23	Sta. ___+__ Lt. Remove Sign, Post & Footing.

DELINEATOR REMOVAL INFORMATION

WHEN THE CONTRACTOR REMOVES DELINEATORS
A note is NOT needed for removing delineators.
This information will be given on the Computation Sheet and in a Special Provision.

WHEN STATE FORCES REMOVE DELINEATORS
Use Standard Note SN20 from the 'std.cel' cell library.

SN20 (STD.CEL) • All existing delineators on this project will be removed and reset by state forces.

SECTION I

EARTHWORK NOTES LIST

Tabular Earthwork Quantities Notes

STANDARD NOTES
SN4 - Contractor to Furnish Cohesive Material
SN12 - Contractor to Furnish Borrow
SN13 - Contractor will not Furnish Borrow
SN14 - Contractor to Furnish Waste
SN22 - Earthwork Measured Embankment
SN26 - Contractor may obtain material for Shoulder from Excess

EARTHWORK NOTES "FOR INFORMATION ONLY"
EW01 - EARTHWORK NOTE #1
EW02 - EARTHWORK NOTE #2
EW03 - EARTHWORK NOTE #3
EW04 - EARTHWORK NOTE #4
EW05 - EARTHWORK NOTE #5
EW06 - EARTHWORK NOTE #6
EW07 - EARTHWORK NOTE #7
EW08 - EARTHWORK NOTE #8
EW09 - EARTHWORK NOTE #9
EW10 - EARTHWORK NOTE #10
EW11 - EARTHWORK NOTE #11
EW12 - EARTHWORK NOTE #12
EW13 - EARTHWORK NOTE #13
EW14 - EARTHWORK NOTE #14
EW15 - EARTHWORK NOTE #15
EW16 - EARTHWORK NOTE #16

SECTION I EARTHWORK NOTES

EARTHWORK NOTES SHEET INDEX

SECTION I EARTHWORK NOTES

NOTE: Show the Temporary Road Embankment Quantities with the Earthwork note.
Place Tabular Earthwork Note Headings on Sheet 3 or Sheet 2-N of the plan set.

EARTHWORK QUANTITIES				
STATION TO STATION	EXCAVATION (CU. YDS.)	EMBANKMENT (CU. YDS.)	BALANCE FACTOR	(+) LONG (-) SHORT
* - *	*	*	*	*
* - *	*	*	*	*
TOTAL	*	*	*	*

ME01

EARTHWORK QUANTITIES		
STATION TO STATION	EXCAVATION AVAILABLE (CU. YDS.)	EARTHWORK MEASURED IN EMBANKMENT (CU. YDS.)
* - *	*	*
* - *	*	*
TOTAL	*	*

ME02

EARTHWORK				
STATION TO STATION	EXCAVATION ESTABLISHED QUANTITY (CU. YDS.)	EMBANKMENT (CU. YDS.)	BALANCE FACTOR	EXCESS EXCAVATION (CU. YDS.)
* - *	*	*	*	*
* - *	*	*	*	*
TOTAL	*	*	*	

The Contractor may use the Excess Excavation for Shoulder Construction and/or Other Embankment.

ME03

EARTHWORK				
STATION TO STATION	EXCAVATION (CU. YDS.)	EMBANKMENT (CU. YDS.)	BALANCE FACTOR	EXCESS EXCAVATION (CU. YDS.)
* - *	*	*	*	*
* - *	*	*	*	*
TOTAL	*	*	*	*

The Contractor may use the Excess Excavation for Shoulder Construction and/or Other Embankment.

ME04

EARTHWORK QUANTITIES FOR TEMPORARY ROAD REMOVAL	
STATION TO STATION	EXCAVATION ESTABLISHED QUANTITIES (CU. YDS.)
* - *	*
* - *	*
TOTAL	*

ME05

EARTHWORK				
STATION TO STATION	EXCAVATION (CU. YDS.)	EMBANKMENT (CU. YDS.)	BALANCE FACTOR	EXCAVATION BORROW (CU. YDS.)
* - *	*	*	*	*
* - *	*	*	*	*
TOTAL	*	*	*	*

ME64

THE ABOVE EARTHWORK QUANTITY CELLS ARE LOCATED IN THE TAB.CEL LIBRARY

(SN4) • The Contractor will be required to furnish Cohesive Material for Shoulder Construction from sources other than State Right-of-Way.

(SN12) • The Contractor will be required to furnish Borrow on this Project.

(SN13) • The Contractor will not be required to furnish Borrow on this Project.

(SN14) • The Contractor will be required to furnish Waste Areas for Excess Excavation on this Project

(SN22) • * cubic yards Earthwork Measured in Embankment of which * cubic yards shall be excavated as shown in the Cross-Sections.

(SN26) • The Contractor may obtain material for Shoulder Construction from Excess Excavation.

THE ABOVE "SN" CELLS ARE LOCATED IN THE STD.CEL LIBRARY

SECTION I EARTHWORK NOTES

THESE NOTES ARE INTENDED FOR USE ON RESURFACING PROJECTS ONLY,
EXAMPLE: WHEN REQUESTING NOTE, REFER TO AS "NEED NOTE EW10"

FOR INFORMATION ONLY

EW01 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This material is available within State Right-of-Way, as directed by the Engineer, at the following locations:

FOR INFORMATION ONLY

EW02 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This material is available within State Right-of-Way, as directed by the Engineer, at the following locations:

FOR INFORMATION ONLY

EW03 • As indicated by the Typical Section, Embankment will be required to construct the earth portion of the shoulder. This material is available within State Right-of-Way, throughout the Project, as directed by the Engineer.

FOR INFORMATION ONLY

EW04 • As indicated by the Typical Section, Embankment will be required to construct the earth portion of the shoulder. This Embankment and material needed for Roadway Grading will be available within State Right-of-Way, throughout the Project, as directed by the Engineer.

FOR INFORMATION ONLY

EW05 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This material is available within State Right-of-Way, throughout the Project, as directed by the Engineer.

FOR INFORMATION ONLY

EW06 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This Embankment and material needed for Roadway Grading will be available within State Right-of-Way, throughout the Project, as directed by the Engineer at the following locations:

FOR INFORMATION ONLY

EW07 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This material will be furnished by the Contractor from sources other than State Right-of-Way.

FOR INFORMATION ONLY

EW08 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This Embankment and material needed for Roadway Grading will be furnished by the Contractor from sources other than State Right-of-Way.

FOR INFORMATION ONLY

EW09 • As indicated by the Typical Section, Embankment will be required to construct the earth portion of the shoulder. This material will be furnished by the Contractor from sources other than State Right-of-Way.

FOR INFORMATION ONLY

EW10 • As indicated by the Typical Section, Embankment will be required to construct the earth portion of the shoulder. This Embankment and material needed for Roadway Grading will be furnished by the Contractor from sources other than State Right-of-Way.

FOR INFORMATION ONLY

EW11 • As indicated by the Cross-Sections, Embankment will be required to construct the earth portion of the shoulder. This Embankment and material needed for Roadway Grading will be available within State Right-of-Way, throughout the Project, as directed by the Engineer.

FOR INFORMATION ONLY

EW12 • As indicated by the Typical Section, Embankment will be required to construct the earth portion of the shoulder. This Embankment and material needed for Roadway Grading will be available within State Right-of-Way, throughout the Project, as directed by the Engineer at the following locations:

FOR INFORMATION ONLY

EW13 • Any additional Embankment required to construct the earth portion of the shoulder is available within State Right-of-Way, throughout the Project, as directed by the Engineer.

FOR INFORMATION ONLY

EW14 • As indicated by the Cross-Sections, Earthwork Measured in Embankment will be required. This material will be furnished by the Contractor from sources other than State Right-of-Way.

FOR INFORMATION ONLY

EW15 • As indicated by the Cross-Sections, Earthwork Measured in Embankment will be required. This material is available within State Right-of-Way. throughout the Project, as directed by the Engineer.

FOR INFORMATION ONLY

EW16 • As indicated by the Cross-Sections, Earthwork Measured in Embankment will be required. This material is available within State Right-of-Way. as directed by the Engineer, at the following locations.

THE ABOVE "EW" CELLS ARE LOCATED IN THE STD.CEL LIBRARY

BRIDGE NOTES LIST

J01 - Dbl. Tee Beam Bridge (Prelim. Note)
J02 - Conc. Deck Bridge (Prelim. Note)
J03 - Build Steel Girder Bridge
J04 - Build Welded Plate Bridge
J05 - Transverse Joist Bridge (Prelim. Note)
J06 - Build Continuous Girder Bridge
J07 - Prestressed Girder Bridge (Prelim. Note)
J08 - Dbl. Prestressed Girder Bridge (Widen)
J09 - Build Multi-Span Deck Steel Girder Bridge
J10 - Treated Timber Bridge (Prelim. Note)
J11 - Pony Truss Bridge (Prelim. Note)
J12 - Prestressed Concrete Girder Bridge (Prelim. Note)
J13 - Deck Steel Girder & Timber Bridge (Prelim. Note)
J14 - Cont. Concrete Slab Bridge (Prelim. Note)
J15 - Build Conc. Slab Bridge on Skew
J16 - Build Continous Conc. Slab Bridge
J17 - Build Temporary Bridge
J18 - Erect Temporary Bridge

BRIDGE NOTES SHEET INDEX

SECTION J BRIDGE NOTES

INFORMATION ONLY **CELL NAME**

Include the Structure No. with the Bridge Note.

BRIDGE PLANS ONLY
Note that the Special Plan No. is NOT followed by the character "C".

ABBREVIATIONS FOR EXISTING BRIDGE NOTES	
WORD	**ABBREVIATION**
Bridge	*BR.*
Tee	*"T"*
Double	*DBL.*
Concrete	*CONC.*
Deck	*DK.*
Steel	*STL.*
Continuous	*CONT.*
Plate	*PL.*
Viaduct	*VIA.*
Wood	*WD.*
Girder	*GRD.*
Roadway	*RDWY.*

J01 STA. ___+__ #(S _____)
_-___'-__" & _-___'-__" SPANS.
DBL. TEE BEAM BR. W/___' RDWY.

J02 STA. ___+__ #(S_____)
_-___'-__" SPANS CONC. DECK BR.
W/__' RDWY.

J03 *Sta. ___+__ #(S_____)*
Build _-__'-__" & _-__'-__"
Spans Deck Steel Girder
Bridge (__' Roadway).
Special Plan _.

J04 *Sta. ___+__ #(S_____)*
Build _-__'-__" & _-__'-__"
Spans Continuous Welded
Plate Bridge Composite Type.
(__' Rdwy). Special Plan _.

J05 STA. ___+__ #(S_____)
_-___'-__" SPANS TRANSVERSE
JOIST BRIDGE.

J06 *Sta. ___+__ #(S_____)*
Build _-__'-__" & _-__'-__"
Spans Continuous Girder
Bridge (__' Roadway).
Special Plan _.

J07 STA. ___+__ #(S_____)
_-___'-__" & _-___'-__" SPANS
DBL. PRESTRESSED GIRDER BR.
W/__' RDWY.

J08 STA. ___+__ #(S_____)
_-___' - __' & _-___' - __" SPANS
DBL. PRESTRESSED GIRDER BR.
W/__' RDWY.
(Widen to __' Roadway).
Special Plan _.

INFORMATION ONLY **CELL NAME**

J09 *Sta. ___+__ #(S_____)*
Build Multi-Span Deck Steel Girder Viaduct Continuous Composite Type (__' Roadway).
Special Plan _.

J10 STA. ___+__ #(S_____)
_-___'-__" & _-___'-__" SPANS
TREATED TIMBER BR. W/__' RDWY.

J11 STA. ___+__ #(S_____)
_-___'-__" SPANS PONY TRUSS BR.

J12 STA. ___+__ #(S_____)
_-___'-__" SPANS PRESTRESSED
CONC. GIRDER BR. W/__' RDWY.

J13 STA. ___+__ #(S_____)
_-___'-__" SPANS DECK STEEL
GIRDER & _-___'-__" SPANS
TIMBER BR. W/__' RDWY.

J14 STA. ___+__ #(S_____)
_-___'-__" SPANS CONT. CONC.
SLAB BR. ON __° SKEW W/__' RDWY.

J15 *Sta. ___+__ #(S_____)*
Build _-__'__" & _-__'__"
Spans Concrete Slab Bridge on __° Skew (__' Roadway).
Special Plan _.

J16 *Sta. ___+__ #(S_____)*
Build _-__'__" & _-__'__"
Spans Concrete Slab Bridge Continous Type.
Special Plan _.

INFORMATION ONLY **CELL NAME**

TEMPORARY BRIDGES

You do not call out the size, it is addressed in the Special Provisions.

Use 'Build' when the Temp. Bridge is furnished by the Contractor.

Use 'Erect' when the Temp. Bridge is furnished by the State.

NO Removal note - It is handled by Special Provision.

J17 Sta. ___+__
Build Temporary Bridge.
Special Plan _.

J18 Sta. ___+__
Erect Temporary Bridge.
Special Plan _.