RELMIS: WA-451.31

**THIS INDENTURE**, made this 12th day of July, 1995, by and between **SOUTHERN PACIFIC TRANSPORTATION COMPANY**, a Delaware corporation, **THE DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY,** a corporation, herein collectively termed "Railroad," and **CITY OF GRAND JUNCTION**, address: 250 North Fifth Street, Grand Junction, Colorado 81501, herein termed "Grantee";

**WITNESSETH**:

1. Railroad hereby grants to Grantee, subject to the reservations, covenants and conditions herein contained, the right to construct, reconstruct, maintain and operate two (2) 8-inch longitudinal sewer lines, hereinafter referred to as "structure," in, upon, along, across and beneath property of Railroad at or near Grand Junction, County of Mesa, State of Colorado, between and opposite Engineer's Station 80+20, Milepost WA-451.31 to WA-451.49 and Milepost WA-451.57 to WA-451.87, in the locations shown on the print of Railroad's Drawing D-894, dated March 14, 1995, attached and made a part hereof.

The portions of said structure to be installed beneath tracks of Railroad shall be installed in accordance with minimum requirements of Form C. S. 1741, also attached and made a part hereof.

Upon execution hereof, Grantee shall pay Railroad the sum of Six Hundred Ten Dollars ($610) partially to defray cost of handling.

(a) In addition, as monetary consideration for the rights herein granted, Grantee shall pay to Railroad the sum of Nineteen Thousand Two Hundred Thirty-Six Dollars ($19,236).

(b) In the event all or any portion of the said premises of Railroad shall be taken or condemned for public use including conveyance by deed in lieu of or in settlement of condemnation proceedings, Grantee shall receive compensation only for the taking and

damaging of Grantee's improvements. Any other compensation or damages arising out of such taking or condemnation awarded to Grantee shall be assigned by Grantee to Railroad.

2. Project markers in form and size satisfactory to Railroad, identifying the facility and its owner, will be installed and constantly maintained by and at the expense of Grantee at Railroad property lines or such locations as Railroad shall approve. Such markers shall be relocated or removed upon request of Railroad without expense to Railroad.

Absence of markers does not constitute a warranty by Railroad of no subsurface installations.

3. There is reserved unto Railroad, its successors and assigns and anyone acting with the permission of Railroad the right (consistent with the rights herein granted) to construct, reconstruct, maintain and use existing and future railroad tracks, facilities and appurtenances and existing and future transpor-tation, communication (including fiber optic telecommunication systems) and pipeline facilities and appurtenances in, upon, over, under, across and along said property.

4. This grant is made subject to all licenses, leases, easements, restrictions, conditions, covenants, encumbrances, liens and claims of title which may affect said property and the word "grant" as used herein shall not be construed as a covenant against the existence of any thereof.

5. The rights herein granted to Grantee shall lapse and become void if the construction of said structure upon said property is not commenced within one (1) year from the date first herein written.

6. Grantee shall bear the entire cost and expense of constructing, reconstructing and maintaining said structure upon said property.

Grantee, its agents and employees, subject to the provisions hereof, shall have the privilege of entry on said property for the purpose of constructing, reconstructing, maintaining and making necessary repairs to said structure provided that:

(a) Grantee shall give Railroad's division superintendent at least five (5) days' written notice prior to commencement of any work on said structure except emergency repairs in which event, Grantee shall notify Railroad's authorized representa- tive by phone; and

(b) Grantee, at least five (5) days prior to performing any digging activities on the premises of Railroad, must call 1-800-AT-FIBER (available 24 hours) to receive a Qwest Communciations Corporation control number. Grantee will be advised if a telecommunications system is buried anywhere on or about the premises of Railroad in the location where Grantee will perform such digging activities. If there is a telecommunications system, Grantee will be advised as to the owner of the telecommunications system and provided instructions on arranging for a cable locator and will be advised whether relocation or other protection for the telecommunications system is required prior to beginning any work on the premises of Railroad.

Grantee agrees to reimburse Railroad for the cost and expense to Railroad of furnishing any materials or performing any labor in connection with the construction, reconstruction, maintenance and removal of said structure, including, but not limited to, the installation and removal of such falsework and other protection beneath or along Railroad's tracks, and the furnishing of such watchmen, flagmen and inspectors as Railroad deems necessary.

Grantee agrees to reimburse Railroad and/or the owner of the telecommunication system for all expenses which either may incur which expenses would not have been incurred except by the reason of the use of said premises by Grantee, its agents, employees or invitees including relocation costs or any damages incurred by such owner due to the injury to the telecommunication system.

7. In the event Railroad shall at any time reasonably so require, Grantee, at Grantee's expense, shall reconstruct, alter, relocate said structure or otherwise improve said structure upon receipt of written notice from Railroad so to do.

8. Grantee shall, at its expense, comply with all applicable laws, regulations, rules and orders regardless of when they become or became effective, including, without limitation, those relating to health, safety, noise, environmental protection, waste disposal, and water and air quality, and furnish satisfactory evidence of such compliance upon request of Railroad.

Should any discharge, leakage, spillage, emission or pollution of any type occur upon or arise from the premises covered hereunder as a result of Grantee's use, presence, operations or exercise of the rights granted hereunder, Grantee shall, at its expense, be obligated to clean all property affected thereby, whether owned or controlled by Railroad, or any third person, to the satisfaction of Railroad (insofar as the property owned or controlled by Railroad is concerned) and any governmental body having jurisdiction in the matter. Railroad may, at its option, clean Railroad's premises; if Railroad elects to do so, Grantee shall pay Railroad the cost of such cleanup promptly upon the receipt of a bill therefor.

Grantee agrees to investigate, release, indemnify and defend Railroad from and against all liability, cost and expense (including, without limitation, any fines, penalties, judgments, litigation costs and attorney fees) incurred by Railroad as a result of Grantee's breach of this section, or as a result of any such discharge, leakage, spillage, emission or pollution, regardless of whether such liability, cost or expense arises during the time this indenture is in effect or thereafter, unless such liability, cost or expense is proximately caused by the sole negligence, gross negligence, willful misconduct or criminal actions of Railroad, its officers, agents or employees.

9. As part consideration, Grantee agrees to pay Railroad an amount equal to any and all assessments which may be levied by order of any authorized lawful body against the property of Railroad (and which may have been paid by Railroad) to defray any part of the cost or expense incurred in connection with the construction of said structure upon said property commenced within one (1) year from the date first herein written.

10. Grantee agrees to keep said property and said structure in good and safe condition, free from waste, so far as affected by Grantee's operations, to the satisfaction of Railroad. If Grantee fails to keep said property and said structure in a good and safe condition, free from waste, then Railroad may perform the necessary work at the expense of Grantee, which expense Grantee agrees to pay to Railroad upon demand.

11. No work on Railroad's premises shall be commenced by any contractor for Grantee until such contractor has entered into Railroad's standard Contractor's Right of Entry agreement covering such work.

12. To the extent allowed by law, Grantee agrees to release, defend and indemnify Railroad from and against any and all liability, cost and expense for injury to or death of persons and damage to or destruction of property (including, but not limited to, the property and employees of each of the parties hereto), when arising or resulting out of or in any way connected with the performance of work under this Agreement, except when due to the sole negligence, gross negligence, willful misconduct or criminal actions of Railroad. This covenant of indemnity shall continue in full force and effect notwithstanding the full payment of all sums due under this Agreement, or the satisfaction, discharge or termination of this Agreement in any manner whatsoever.

The word "Railroad" as used in this section shall be construed to include, in addition to Railroad, the successors, assigns and affiliated companies of Railroad and any other railroad company that may be lawfully operating upon and over the tracks crossing or adjacent to said structure, and the officers and employees thereof.

13. Should Grantee, its successors or assigns, at any time abandon the use of said property, or any part thereof, or fail at any time to use the same for the purpose contemplated herein for a continuous period of one (1) year, the right hereby given shall cease to the extent of the use so abandoned or discontinued, and Railroad shall at once have the right, in addition to, but not in qualification of the rights hereinabove reserved, to resume exclusive possession of said property or the part thereof the use of which is so discontinued or abandoned.

Upon termination of the rights and privileges hereby granted, Grantee, at its own cost and expense, agrees to remove said structure from said property and restore said property as nearly as practicable to the same state and condition in which it existed prior to the construction of said structure. Should Grantee in such event fail, neglect or refuse to remove said structure and restore said property, such removal and restoration may be performed by Railroad, at the expense of Grantee, which expense Grantee agrees to pay to Railroad upon demand, or Railroad may, at its option, assume ownership of said structure.

14. The parties intend that the promises and obligations of this indenture shall constitute covenants running with the land so as to bind and benefit their respective successors and assigns.

**IN WITNESS WHEREOF**, the parties hereto have caused these presents to be executed in triplicate the day and year first herein written.

**SOUTHERN PACIFIC TRANSPORTATION COMPANY**

By Janice L. Moeller
(Title) MANAGER - CONTRACTS
Attest: C. J. O'Connor
ASSISTANT SECRETARY

Approved as to Form
ATTORNEY 7/8/93

**THE DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY**

By Janice L. Moeller
(Title) MANAGER - CONTRACTS
Attest: C. J. O'Connor
ASSISTANT SECRETARY

**CITY OF GRAND JUNCTION**

By James K. Spehar
(Title) Acting City Manager
Attested By Stephanie Nye, City Clerk
(Title)

# ACKNOWLEDGEMENT

State of Colorado )
)SS
City and County of Denver )

On July 12 1995 before me, Alison Dilges, Notary Public, personally appeared Janie L. Moeller, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or their entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature Alison Dilges (Seal)

NOTARY PUBLIC
ALISON DILGES
STATE OF COLORADO

My Commission Expires 2-11-97

7. DEPTH OF INSTALLATION

Refer to Figure 1 for minimum cover depths for pipeline crossings. Pipelines laid longitudinally on railway rights-of-way, 45 feet or less from centerline of track, shall be buried not less than 4 feet from ground surface to top of pipe. Where pipeline is laid more than 45 feet from centerline of track, minimum cover shall be at least 3 feet.

8. SHUT-OFF VALVES

Accessible emergency shut-off valves shall be installed within effective distances each side of the railway as agreed to by the Chief Engineer and the pipeline company. Where pipelines are provided with automatic control stations at locations and within distances approved by the Chief Engineer, no additional valves shall be required.

9. APPROVAL OF PLANS

Plans for proposed installation shall be submitted to Regional Engineer and must meet the approval of the Chief Engineer before construction begins. Plans shall be drawn to scale showing relation of proposed pipe line to railway tracks, angle of crossing, mile post location or railway survey station, rights-of-way and general layout of tracks and railway facilities. Plans shall include all appurtenant features of the pipe line, such as valves, manholes, vents, casing, etc., located on railway property.

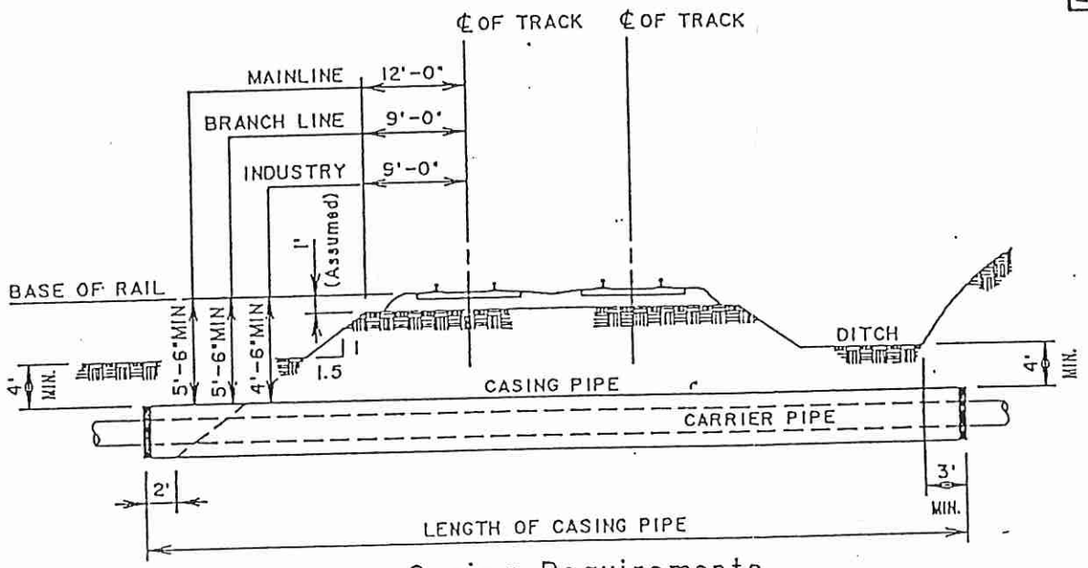
Cross section or profile shall show pipe line and appurtenant features as to the tracks and surrounding ground.

The execution of the work on railway rights-of-way shall be subject to the inspection and direction of the Regional Engineer or his authorized representative.

The plans shall contain the data that is required on the application form (C.E. 41708, SH. 1). The application form shall be completely filled in.

10. EXECUTION OF WORK

The Pipeline Agreement and Contractors Right of Entry Agreement shall be fully executed before any work will be allowed on railway right-of-way. The execution of the work on railway rights-of-way, including the supporting of tracks, shall be subject to the inspection and direction of the Regional Engineer. A minimum of 5 days notice to railway is required prior to entry on right-of-way for construction.




Casing Requirements
Figure 1

Table 1
Table for Determining Minimum Size of Casing

| NOMINAL SIZE CARRIER | TYPE OF CARRIER PIPE AND STYLE OF JOINT: STEEL OR PLASTIC — MINIMUM NOMINAL SIZE OF CASING |
|---|---|
| 3/4" | 2" |
| 1" | 2 1/2" |
| 1 1/4" | 3" |
| 1 1/2" | 3 1/2" |
| 2" | 4" |
| 2 1/2" | 4 1/2" |
| 3" | 6" |
| 3 1/2" | 8" |
| 4" | 8" |
| 6" | 10" |
| | |
| | |

| NOMINAL SIZE CARRIER | AWWA DUCTILE IRON — TYTON | AWWA DUCTILE IRON — BELL-SPIGOT | AWWA DUCTILE IRON — MECHANICAL | WELDED STEEL | V.C. PIPE EXTRA STRONG |
|---|---|---|---|---|---|
| | MINIMUM NOMINAL SIZE OF CASING | | | | |
| 4" | 10" | 10" | 12" | 8" | 10" |
| 6" | 14" | 14" | 16" | 10" | 14" |
| 8" | 16" | 16" | 18" | 12" | 16" |
| 10" | 18" | 20" | 20" | 14" | 18" |
| 12" | 22" | 22" | 22" | 16" | 20" |
| 14" | 24" | 24" | 26" | 18" | |
| 16" | 26" | 26" | 28" | 20" | 24" |
| 18" | 28" | 28" | 30" | 24" | 26" |
| 20" | 30" | 30" | 32" | 26" | 32" |
| 24" | 36" | 36" | 36" | 30" | 36" |
| 30" | | | | 36" | |
| 36" | | | | 42" | |

Table 2
Steel Casing
(Casing with Protective Coating)

| NOMINAL DIAMETER (inches) | MIN. WALL THICKNESS (inches) | NOMINAL DIAMETER (inches) | MIN. WALL THICKNESS (inches) |
|---|---|---|---|
| 14" & UNDER | 0.188" | 44" & 46" | 0.594" |
| 16" | 0.219" | 48" | 0.625" |
| 18" | 0.250" | 50" | 0.656" |
| 20" & 22" | 0.281" | 52" | 0.688" |
| 24" | 0.312" | 54" | 0.719" |
| 26" | 0.344" | 56" & 58" | 0.750" |
| 28" | 0.375" | 60" | 0.781" |
| 30" | 0.406" | 62" | 0.813" |
| 32" | 0.438" | 64" | 0.844" |
| 34" & 36" | 0.469" | 66" & 68" | 0.875" |
| 38" | 0.500" | 70" | 0.906" |
| 40" | 0.531" | 72" | 0.938" |
| 42" | 0.563" | | |

SOUTHERN PACIFIC LINES
COMMON STANDARD

# PIPE LINES

FOR NON-FLAMMABLE SUBSTANCES ACROSS OR ALONG RIGHT OF WAY

NO SCALE REVISED JAN. 1, 1990

EN.C.STANDARD.CS1741.REVISED

## 1. SCOPE

Ripelines included under these specifications are those installed to carry steam, water or any non-flammable substance which from its nature or pressure, might cause damage if escaping on or in the vicinity of railway property.

## 2. GENERAL REQUIREMENTS

a. Pipelines under railway tracks shall be encased in a larger pipe or conduit called the casing pipe as indicated in Figure 1. Design shall be based on superimposed load due to railway (Cooper E-80) loading with applicable impact in combination with internal pressure, external loads and installation loads.

b. Casing pipe may be omitted under the following conditions providing that open trenching is approved by the Chief Engineer.

(1) Under industrial tracks, and under slow speed branch line tracks in paved city streets where line pressure is less than 100 psi. The pipe joints are to be of leakproof construction and the pipe material shall safely withstand the combination of internal pressure and external loads. Joints shall be mechanical or welded type.

(2) For non-pressure sewer and storm drain crossings under light traffic branch lines where the pipe strength is capable of withstanding railway loading.

c. Pipelines shall be located, where practicable, to cross tracks at approximately right angles thereto but preferably at not less than 45 degrees, and shall not be placed within culverts nor under railway bridges. Pipelines shall preferably be installed under tracks by dry boring or jacking.

d. Pipelines laid longitudinally on railway rights-of-way shall be located as far as practicable from any tracks or other important structures. If located within 25 feet of the center line of any track or where there is danger of damage from leakage to any bridge, building or to structure, the carrier pipe shall be encased or of special design as approved by the Chief Engineer.

## 3. CARRIER PIPE

a. Carrier line pipe and joints shall be of accepted material and construction as approved by the Chief Engineer. Pipe material under and adjacent to tracks are to be capable of supporting a minimum of 3600 pounds per square foot for cover heights of 30 feet or less. For heights greater than 30 feet, supporting weight shall be increased proportionately. The pipe shall be laid with sufficient slack so that it is not in tension.

b. Plastic pipe in a casing is an acceptable material if it is PVC or High Density Polyethylene and minimum schedule 40. Internal pressures not to exceed 100 psi.

## 3. CARRIER PIPE (continued)

c. Ductile Iron Pipe in a casing is acceptable as follows:

Class 52 for diameters of 4" thru 10"
Class 53 for diameters of 12" thru 14"
Class 54 for diameters of 16" thru 18"
Class 56 for diameters of 20" thru 24"

d. Reinforced Concrete Pipe is acceptable if it is Class V. Minimum of Class III RCP is acceptable for longitudinal pipe located 45 feet or more from the centerline of track.

e. Vitrified Clay Pipe (ASTM C-700) in a casing is acceptable if it is extra strength with joints per ASTM C-425 and based on a load factor of 1.5. Longitudinal vitrified clay pipe as described above is acceptable uncased if backfill is compacted to match density of adjacent soil.

## 4. CASING PIPE

Casing pipe and joints shall be of leakproof construction, capable of withstanding railway loading (Cooper E-80), minimum size to be determined from Table 1 and 2. Table 2 indicates a minimum thickness based upon superimposed loads only and it is the responsibility of the Installer to provide a casing which is adequate for the loads that result during installation. If additional tracks are constructed in the future, the casing shall be extended correspondingly by the pipeline owner.

Steel casing pipe to have a minimum yield strength of 35,000 psi. When casing is installed without benefit of a protective coating, and said casing is not cathodically protected, the wall thickness shown in table 2 shall be increased to the nearest standard size which is a minimum of 0.063" greater than the thickness shown, except for diameters less than 14". Casing distances shown in Figure 1 are measured perpendicular to the track.

## 5. CONSTRUCTION

a. Casing shall be so constructed as to prevent leakage of any substance from the casing throughout its length except at its ends. Casing shall be so installed as to prevent the formation of a waterway under the railway, with an even bearing through its length, and shall slope to one end (except for longitudinal occupancy).

b. Installation by open trench methods shall comply with Installation of Pipe Culverts, American Railway Engineering Association (AREA) Manual for Railway Engineering, Chapter 1, Part 4.12.

c. Dry bored or jacked installations shall have a bored hole diameter essentially the same as the outside diameter of the pipe plus the thickness of the protective coating. If voids should develop or if the bored diameter is greater than the outside diameter of the pipe (including coating) by more than one inch, the space shall be filled by grouting or other remedial measures as approved by the Chief Engineer. Boring operations shall not be stopped if such stoppage would be detrimental to the railroad.

## 5. CONSTRUCTION (continued)

d. Tunneling operations shall be conducted as approved by the Chief Engineer. If voids are caused by the tunneling operations, they shall be filled by pressure grouting or by other approved methods which will provide proper support.

e. Void between casing and carrier pipe to be filled with sand in all high pressure installations. Void to be partially filled in others as directed by the Chief Engineer.

f. Excavations and bore pits shall be a minimum distance of twenty feet from the centerline of the nearest track. Shoring plans and calculations may be required to be submitted prior to construction per AREA manual and SP supplement.

g. Fibre Optic cable lines may be on the right-of-way, the applicant shall call (800)283-4237 to determine if fiber optic cables are present. Applicant shall call prior to digging to verify location and arrange inspection.

## 6. PROTECTION AT END OF CASING

The ends of the casing are to be suitably sealed against the entrance of foreign material, but are not to be tightly sealed.

SOUTHERN PACIFIC LINES
COMMON STANDARD

# PIPE LINES

FOR NON-FLAMMABLE SUBSTANCES ACROSS OR ALONG RIGHT OF WAY

NO SCALE REVISED JAN. 1, 1990

EN.C.STANDARD.CS1741.REVISED

# DURHAM

MESA COUNTY, COLO.

SCALE 1"=100'

S 5.00° 05' W 341.96' from N.E. Cor. SE¼ NW¼ Sec. 9 T.1S. R.1W.

Rad. 5680.0' ch. S 58° 46' 05" E 102.93'

1° Curve

Sold to Dept. of Hwys. QCD-C-5995 11-15-57

R=5680' 733.3'

110'±

Deed #5755 6-1-60 Sold to Miller Stl. Inc. 0.049 Ac± coal oil gas reserved

Pt. of Beg.

Q.C. Deed #5731 11-16-59 Sold to Miller Steel, Inc. 0.266 Ac± Coal, Oil, Gas reserved.

N. 56° 34' W. 391.92'

Spl. W.D. C-6086 Sold to W.E. Hall 1.345 Ac.±

Deed No. U-2435

Spl. W.D. #5352 7-31-53 Sold to Miller Steel, Inc. 1.88 Ac.±, Reserving title to coal, oil, etc.

Trustee's Deed #4879 10-28-1946 D.&R.G.W.R.R.Co. to C.H. Gavin 0.2 Ac.± (Corrects Deed #4611)

Deed No. C-6503

.6 Ac.±

MP 451.87

N 33° 26' E 283.4'

S 56° 34' E 283.35'

N 50° 00' S 283.11'

235.17'

330.54'

Deed No. 4611

Q.C.D. #4880 8-31-1946 C.H. Gavin to D.&R.G.W. R.R. Co. 2.15 Ac.± (Corrects Deed #4611)

283.11'

Permit Required MP 451.73

(1,584.77'± encroachment)

77+02 H.B. ICC Trk. No. 2

1" C.I.P. Agr. No. 5079

Sewer Line T2

8'X3'X20' Conc. Arch & 48"X16' C.M.P. Extn. ~ 74+61 S. end 48"X16" " " N. end

N 56° 34' W 299.16'

372.72'

3" Transite Pipe (Grd. Jct. City Water)

(MH-1T2)

(MH-2T2)

(MH-3T2)

(MH-4T2)

I.C.C. No. 2-680

F.D. No. 2023 (Utah)

16.5'

450'

350'

Sold to Ute Water Conserva...

PHONE BOOTH

Teleph. Line

I.C.C. No. 3-1151'

I.C.C. No. 1-5720'

N. 56° 34' W.

To Grand Junction

I.C.C. No. 1-C 496'

Const. AFE 8297

Cont. # 27866 City of Grand Junc. 54" U.G. sewer 451+3840'

Cont. #27629, Trackage Agreement Coors Porcelain.

Cattle Guards ~ 83+77

Cattle Guards ~ 82+94

Xing ~ 83+25 (closed to public but maintained as cattle drive xing only ~ See Agr. No. 6297)

24'x72' C.M.P. AFE 5323 1960

Cont. #27865 City of Grand Jct. M.P. 451+4560' 18" U.G. Sewer Cont. #28166, 11.5" Water, MP 451+4566' Ute Water Conservancy Dist.

Public Crossing Closed P.U.C. Decision #28266 May 29, 1947

O.P. MP 451+3945 U.G. Phone Per. No. 3064 U.S. West

MP 451+6491 Pole #6491 Ph. N.W.

82+85

83+33 S.C.

1/4 Line

74+68

1/4 Line

T.1S., R.1W., UTE P.M.

9

19

20

SUBDIVISIONS

| Deed No. | Instr. | Gr |
|---|---|---|
| 1322 | W.D. | Givalius |
| U-2435 | Q.C. | Wm F. C |
| U-2923 | E.D. | Grd. Jct |
| 4611 | Q.C. | Mesa Co |
| 4612 | T.D. | D.&R.G.W |

8'X3'X20' Conc. Arch & 48"X16' C.M.P. Extn ~ 74+61 S.end
48"X16' " " N.end
48"X16' " "

73+20 H.B. ICC No.3

MP 451.57'

12'X24'X30' Wd. Box ~ 70+74

MP 451+25 71'2" U.G. Gas Line - P.S.Co. Per. #6060

MP 451.49'

24'X24'X20' Conc. Arch & 18"X16' C.M.P. Extn ~ 65+97
18"X20' Conc.P. " S.end

NE1/4, SE1/4, Sec. 9
T.1S., R.1W.

r Line T2

(MH-4T2)

400'

(MH-5T2)

d to Ute Water Conservancy Distrct B of S. Deed #C-6060 ?-28-69

PHONE BOOTH

No.B-1151'

72'±

U.S. Gov't.

70

Mainline

+95 Sign

80'±

(MH-5T1)

360'

(980' encroachment)

Sewer Line T1

(MH-4T1)

400'

80'±

77'±

(MH-3T1

75'±

| № | Instr. | Grantor | Date | Remarks |
|---|---|---|---|---|
| | W.D. | Givalius A. Brett | 5-17-86 | 50'X50' |
| 135 | Q.C. | Wm F. Colton | 11-4-04 | 10.33 Ac. (Stock Yards Area) |
| 923 | E.D. | Grd. Jct. Fruit Growers Ass'n. | 10-25-09 | Spur Track easement. |
| | Q.C. | Mesa County | 7-7-41 | 2.58 Ac. for exchange of land in Deed 4612 |
| 2 | T.D. | D.&R.G.W. to Mesa County | 8-27-41 | 2.46 Ac. for highway (See Agr. № 6297) |

NW1/4, SE1/4, Sec 9
T.1S., R.1W.

17

Cattle Guards ~ 68+33

Road Xing ~ 67+74

Cattle Guards ~ 67+28

Line

67+67 Sec.

P.T. 59+99.3

3X33
S=1°0

16

20 S I O N

P.T. 59+99.3

3 X 33'
S=1°00'

P.C.S. 59+00.3

D=2°
Δ=2s=13°49'

COLORADO RIVER

(MH-3T1)

75'±

220'

U.S. Gov't.

(MH-2T1)

48'

MP 451.31

36" X 15' Conc. Culv. & 36"+16' C.M.P. Ext'n
Agr. Nº 2915 & 2940 ~55+90

(MH-1T1)

70'

100'

P.S.C. 52+09.5

3 X 33'
S=1°00'

P.C. 51+10.5

Rip-Rap

50

MP 451+878' Per. Nº 2785
U.G. No. Bell

3/4" W.I.P. ~ Agr. Nº 4888

Section Line
25 Road
S. 0°30' W. 50+65.7

MP 451+1075' O.H. Power
Per. Nº 772 Public Service Co

MP 451+1048' 24" Sewer
Cont. Nº 28770 City of Grand Jct.

MP 451+985' M St & T Xing

W.O. Nº 1232

3" Transite Water Line

H.B. ~ I.C.C. Nº 1 ~ 47+83
Power Sw.

47+22 H.B. Power Sw.
I.C.C. # 11 Rv

50'

48'

84" X 80' C.M.P. ~ 44+93
84" X 15' Multiplate Pipe Ext'n

To Denver

SW1/4, SW1/4, S
T.1 S., R.1

LEGEND

Proposed Sewer Line

Proposed Manhole

36 x 15' Conc. Culv. & 36"16' C.M.P. Extn
Agr. Nº 2915 & 2940 ~55+90

(MH-17)

Section Line
25 Road
S.0°30'W. 50+65.7

MP 451+1075' O.H. Power
Per. Nº 772 Public Service Co

MP 451+1048' 24" Sewer
Cont. Nº 28770 City of Grand Jct.

MP 451+985' M.S.T. & T xing

1116 Line

SW1/4, SW1/4 Sec. 10
T.1S., R.1W.

W. Switching Limit
of Grand Junction Yard

M.P. 451

MP 451+878' Per.# 2785
U.G. Mo. Bell

34" W.I.P. ~ Agr. Nº 4888

H.B. ~ I.C.C. Nº 1 ~ 47+83
Power Sw.

47+22 H.B. Power Sw.
I.C.C. # 11 Rd

3" Transite Water Line
W.O. Nº 1322

84" X 80' C.M.P. ~ 44+93
84" X 15' Multiplate Pipe Extn

Per. # 2661; U.S. Cable; M.S.T. Ext.
MP 450+1115 to MP 451+130

41+70

43+45 S.C.

To. Denver

Rip-Rap

COLORADO RIVER

D = 2°
Δ - 2s = 13°49'

P.S.C. 52+09.5

3 X 3.3'
S = 1°00'

P.C. 51+10.5

100'
70'
50
50'
48'
50'

LEGEND

- Proposed Sewer Line
- Proposed Manhole

D & RGW RR
COLORADO C

**DURHAM**

Mesa County

*proposed sewer line encroachment*

**CITY OF GRAND JUNCTION**

| | |
|---|---|
| SCALE: 1"=100' | DATE: 3-14-95 |
| BRANCH: Mainline | VAL. SEC.: 13-C |
| MP: 451.31 | MAP NO.: 115-_ |
| DRAWN BY: TLG | ROUTE NO.: WA |
| PER: JI | DWG. NO.: D-89- |

7. DEPTH OF INSTALLATION

Refer to Figure 1 for minimum cover depths for pipeline crossings. Pipelines laid longitudinally on railway rights-of-way, 45 feet or less from centerline of track, shall be buried not less than 4 feet from ground surface to top of pipe. Where pipeline is laid more than 45 feet from centerline of track, minimum cover shall be at least 3 feet.

8. SHUT-OFF VALVES

Accessible emergency shut-off valves shall be installed within effective distances each side of the railway as agreed to by the Chief Engineer and the pipeline company. Where pipelines are provided with automatic control stations at locations and within distances approved by the Chief Engineer, no additional valves shall be required.

9. APPROVAL OF PLANS

Plans for proposed installation shall be submitted to Regional Engineer and must meet the approval of the Chief Engineer before construction begins. Plans shall be drawn to scale showing relation of proposed pipe line to railway tracks, angle of crossing, mile post location or railway survey station, rights-of-way and general layout of tracks and railway facilities. Plans shall include all appurtenant features of the pipe line, such as valves, manholes, vents, casing, etc., located on railway property.

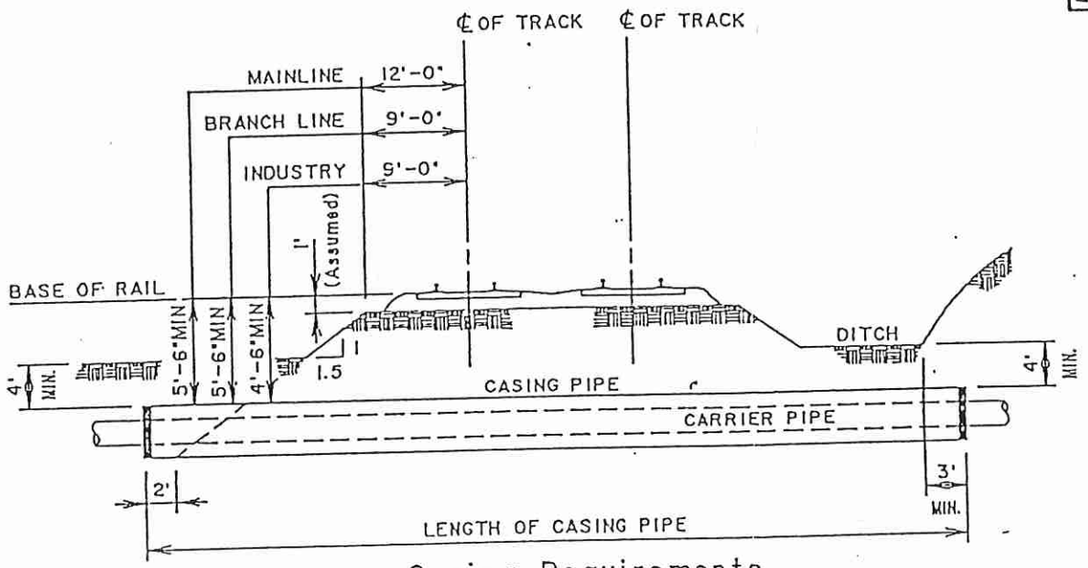
Cross section or profile shall show pipe line and appurtenant features as to the tracks and surrounding ground.

The execution of the work on railway rights-of-way shall be subject to the inspection and direction of the Regional Engineer or his authorized representative.

The plans shall contain the data that is required on the application form (C.E. 41708, SH. 1). The application form shall be completely filled in.

10. EXECUTION OF WORK

The Pipeline Agreement and Contractors Right of Entry Agreement shall be fully executed before any work will be allowed on railway right-of-way. The execution of the work on railway rights-of-way, including the supporting of tracks, shall be subject to the inspection and direction of the Regional Engineer. A minimum of 5 days notice to railway is required prior to entry on right-of-way for construction.




Casing Requirements
Figure 1

Table 1
Table for Determining Minimum Size of Casing

| NOMINAL SIZE CARRIER | TYPE OF CARRIER PIPE AND STYLE OF JOINT: STEEL OR PLASTIC — MINIMUM NOMINAL SIZE OF CASING |
|---|---|
| 3/4" | 2" |
| 1" | 2 1/2" |
| 1 1/4" | 3" |
| 1 1/2" | 3 1/2" |
| 2" | 4" |
| 2 1/2" | 4 1/2" |
| 3" | 6" |
| 3 1/2" | 8" |
| 4" | 8" |
| 6" | 10" |
| | |
| | |

| NOMINAL SIZE CARRIER | AWWA DUCTILE IRON — TYTON | AWWA DUCTILE IRON — BELL-SPIGOT | AWWA DUCTILE IRON — MECHANICAL | WELDED STEEL | V.C. PIPE EXTRA STRONG |
|---|---|---|---|---|---|
| | MINIMUM NOMINAL SIZE OF CASING | | | | |
| 4" | 10" | 10" | 12" | 8" | 10" |
| 6" | 14" | 14" | 16" | 10" | 14" |
| 8" | 16" | 16" | 18" | 12" | 16" |
| 10" | 18" | 20" | 20" | 14" | 18" |
| 12" | 22" | 22" | 22" | 16" | 20" |
| 14" | 24" | 24" | 26" | 18" | |
| 16" | 26" | 26" | 28" | 20" | 24" |
| 18" | 28" | 28" | 30" | 24" | 26" |
| 20" | 30" | 30" | 32" | 26" | 32" |
| 24" | 36" | 36" | 36" | 30" | 36" |
| 30" | | | | 36" | |
| 36" | | | | 42" | |

Table 2
Steel Casing
(Casing with Protective Coating)

| NOMINAL DIAMETER (inches) | MIN. WALL THICKNESS (inches) | NOMINAL DIAMETER (inches) | MIN. WALL THICKNESS (inches) |
|---|---|---|---|
| 14" & UNDER | 0.188" | 44" & 46" | 0.594" |
| 16" | 0.219" | 48" | 0.625" |
| 18" | 0.250" | 50" | 0.656" |
| 20" & 22" | 0.281" | 52" | 0.688" |
| 24" | 0.312" | 54" | 0.719" |
| 26" | 0.344" | 56" & 58" | 0.750" |
| 28" | 0.375" | 60" | 0.781" |
| 30" | 0.406" | 62" | 0.813" |
| 32" | 0.438" | 64" | 0.844" |
| 34" & 36" | 0.469" | 66" & 68" | 0.875" |
| 38" | 0.500" | 70" | 0.906" |
| 40" | 0.531" | 72" | 0.938" |
| 42" | 0.563" | | |

SOUTHERN PACIFIC LINES
COMMON STANDARD

# PIPE LINES

FOR NON-FLAMMABLE SUBSTANCES ACROSS OR ALONG RIGHT OF WAY

NO SCALE REVISED JAN. 1, 1990

EN.C.STANDARD.CS1741.REVISED

## 1. SCOPE

Ripelines included under these specifications are those installed to carry steam, water or any non-flammable substance which from its nature or pressure, might cause damage if escaping on or in the vicinity of railway property.

## 2. GENERAL REQUIREMENTS

a. Pipelines under railway tracks shall be encased in a larger pipe or conduit called the casing pipe as indicated in Figure 1. Design shall be based on superimposed load due to railway (Cooper E-80) loading with applicable impact in combination with internal pressure, external loads and installation loads.

b. Casing pipe may be omitted under the following conditions providing that open trenching is approved by the Chief Engineer.

(1) Under industrial tracks, and under slow speed branch line tracks in paved city streets where line pressure is less than 100 psi. The pipe joints are to be of leakproof construction and the pipe material shall safely withstand the combination of internal pressure and external loads. Joints shall be mechanical or welded type.

(2) For non-pressure sewer and storm drain crossings under light traffic branch lines where the pipe strength is capable of withstanding railway loading.

c. Pipelines shall be located, where practicable, to cross tracks at approximately right angles thereto but preferably at not less than 45 degrees, and shall not be placed within culverts nor under railway bridges. Pipelines shall preferably be installed under tracks by dry boring or jacking.

d. Pipelines laid longitudinally on railway rights-of-way shall be located as far as practicable from any tracks or other important structures. If located within 25 feet of the center line of any track or where there is danger of damage from leakage to any bridge, building or to structure, the carrier pipe shall be encased or of special design as approved by the Chief Engineer.

## 3. CARRIER PIPE

a. Carrier line pipe and joints shall be of accepted material and construction as approved by the Chief Engineer. Pipe material under and adjacent to tracks are to be capable of supporting a minimum of 3600 pounds per square foot for cover heights of 30 feet or less. For heights greater than 30 feet, supporting weight shall be increased proportionately. The pipe shall be laid with sufficient slack so that it is not in tension.

b. Plastic pipe in a casing is an acceptable material if it is PVC or High Density Polyethylene and minimum schedule 40. Internal pressures not to exceed 100 psi.

## 3. CARRIER PIPE (continued)

c. Ductile Iron Pipe in a casing is acceptable as follows:

Class 52 for diameters of 4" thru 10"
Class 53 for diameters of 12" thru 14"
Class 54 for diameters of 16" thru 18"
Class 56 for diameters of 20" thru 24"

d. Reinforced Concrete Pipe is acceptable if it is Class V. Minimum of Class III RCP is acceptable for longitudinal pipe located 45 feet or more from the centerline of track.

e. Vitrified Clay Pipe (ASTM C-700) in a casing is acceptable if it is extra strength with joints per ASTM C-425 and based on a load factor of 1.5. Longitudinal vitrified clay pipe as described above is acceptable uncased if backfill is compacted to match density of adjacent soil.

## 4. CASING PIPE

Casing pipe and joints shall be of leakproof construction, capable of withstanding railway loading (Cooper E-80), minimum size to be determined from Table 1 and 2. Table 2 indicates a minimum thickness based upon superimposed loads only and it is the responsibility of the Installer to provide a casing which is adequate for the loads that result during installation. If additional tracks are constructed in the future, the casing shall be extended correspondingly by the pipeline owner.

Steel casing pipe to have a minimum yield strength of 35,000 psi. When casing is installed without benefit of a protective coating, and said casing is not cathodically protected, the wall thickness shown in table 2 shall be increased to the nearest standard size which is a minimum of 0.063" greater than the thickness shown, except for diameters less than 14". Casing distances shown in Figure 1 are measured perpendicular to the track.

## 5. CONSTRUCTION

a. Casing shall be so constructed as to prevent leakage of any substance from the casing throughout its length except at its ends. Casing shall be so installed as to prevent the formation of a waterway under the railway, with an even bearing through its length, and shall slope to one end (except for longitudinal occupancy).

b. Installation by open trench methods shall comply with Installation of Pipe Culverts, American Railway Engineering Association (AREA) Manual for Railway Engineering, Chapter 1, Part 4.12.

c. Dry bored or jacked installations shall have a bored hole diameter essentially the same as the outside diameter of the pipe plus the thickness of the protective coating. If voids should develop or if the bored diameter is greater than the outside diameter of the pipe (including coating) by more than one inch, the space shall be filled by grouting or other remedial measures as approved by the Chief Engineer. Boring operations shall not be stopped if such stoppage would be detrimental to the railroad.

## 5. CONSTRUCTION (continued)

d. Tunneling operations shall be conducted as approved by the Chief Engineer. If voids are caused by the tunneling operations, they shall be filled by pressure grouting or by other approved methods which will provide proper support.

e. Void between casing and carrier pipe to be filled with sand in all high pressure installations. Void to be partially filled in others as directed by the Chief Engineer.

f. Excavations and bore pits shall be a minimum distance of twenty feet from the centerline of the nearest track. Shoring plans and calculations may be required to be submitted prior to construction per AREA manual and SP supplement.

g. Fibre Optic cable lines may be on the right-of-way, the applicant shall call (800)283-4237 to determine if fiber optic cables are present. Applicant shall call prior to digging to verify location and arrange inspection.

## 6. PROTECTION AT END OF CASING

The ends of the casing are to be suitably sealed against the entrance of foreign material, but are not to be tightly sealed.

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