LOUISIANA

CITY OF NEW ORLEANS

ROADWAY DESIGN GUIDE

DEPARTMENT OF PUBLIC WORKS

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City of New Orleans

DEPARTMENT OF PUBLIC WORKS

ROADWAY DESIGN GUIDE

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CHAPTER I

LAYOUT PROCEDURES & AutoCAD DRAFTING STANDARDS

Place text on the layer to which it applies except text associated with new construction and for descriptions of existing topography. AutoCAD files must be created such that the information is spatially compatible with GIS programs.

1.01 LAYERS

COLOR/ LAYER NAME	LINE WEIGHTS/ LINE TYPES	OBJECTS
GRAY (#8)	**0.004"**	
HATCH	CONTINUOUS	HATCH TO SHOW NEW WORK ON ROADWAY AND/OR MATERIAL OF ROADWAY PAVEMENT.

…

COLOR/ LAYER NAME	LINE WEIGHTS/ LINE TYPES	OBJECTS
GREEN (#3)	**0.006"**	
EX-TOPO	CONTINUOUS	EXISTING TOPO/FEATURES/ELEVATION
REMOVE	DASHED2	EXISTING OBJECTS TO BE REMOVED
SIDETXT (*)	TEXT	TEXT FOR EXISTING TOPO/SIDE TEXT (*)
PROFTXT (*)	TEXT	TEXT FOR EXISTING UTILITIES ON PROFILE. (*)
		(*) – Italic Text – Capitalized, Lower Case – Height: 0.10”
TRIM	CONTINUOUS	OVERALL BORDER (24"X36") FOR CITY PROJECTS,
GRID-HV3	DOT2	HORIZONTAL GRIDLINES ON PROFILE AT 0.2 FT O.C. WITHIN EACH FOOT HEIGHT
		HORIZONTAL & VERTICAL GRIDLINES ON X-SECTIONS AT 0.2 Ft. O.C. (within each foot height vert.)

…

YELLOW (#2)	**0.008"**	
DIMEN	CONTINUOUS	DIMENSION LINES, REFERENCE LINES
EX-ELEC	DASHED	EXISTING UNDERGROUND ELECTRIC
EX-CBTV	DASHED	EXISTING UNDERGROUND CABLE TV
LT-ROWX	DASHED	EXISTING LEFT R.O.W./PROPERTY LINES PROFILE.
RT-ROWX	DASHEDX2	EXISTING RIGHT R.O.W./PROPERTY LINES PROFILE.
GRID-V10	DOT2	VERTICAL GRID LINES ON PROFILE AT 10 FT, 30 FT, 50 FT, 70 FT & 90 FT FROM EACH STATION.

…

BLUE (#5)	**0.008"**	
EX-WATER	DASHED	EXISTING WATER LINES.
EX-SEWER	DASHED	EXISTING SEWER LINES.
HATCH2	CONTINUOUS	HATCH FOR AREAS TO BE REMOVED

RT-MID-EX	DOT	EXISTING RIGHT MEDIAN GUTTER LINE PROFILE.
LT-MID-EX	HIDDEN2	EXISTING LEFT MEDIAN GUTTER LINE PROFILE.
GRID-HV1	CONTINUOUS	HORIZONTAL GRID LINE ON PROFILES AT EACH FOOT HEIGHT.
		VERTICAL & HORIZONTAL GRID LINES ON X-SECTIONS AT EACH FOOT HEIGHT.

…

CYAN (#4)	**0.010"**	
EX-DRAIN	DASHED	EXISTING DRAIN LINES
EX-GAS	DASHED	EXISTING GAS LINES
RT-SW-EX	DIVIDE2	EXISTING RIGHT SIDEWALK PROFILE.
LT-SW-EX	HIDDEN	EXISTING LEFT SIDEWALK PROFILE.
GRID-V20	CONTINUOUS	VERTICAL GRID LINES ON PROFILE AT 20 FT O.C. BETWEEN STATIONS.

…

RED (#1)	**0.014"**	
AG-UTIL	CONTINUOUS	EXISTING ABOVE GROUND UTILITIES
ROW-EX	PHANTOM2	EXISTING PROPERTY LINES (R.O.W.)
EX-MH-PF	DASHED	EXISTING MH/CB ON PROFILE
EX-PIPE-PF	DASHED	EXISTING PIPE ON PROFILE.
GRIDV100	CONTINUOUS	VERTICAL GRID LINE ON PROFILE AT EACH STATION.
		TOP & BOTTOM HORIZONTAL GRIDLINES ON PROFILE.
RT-GUT-EX	DASHED2	EXISTING RIGHT GUTTERLINE PROFILE.
LT-GUT-EX	DASHDOT	EXISTING LEFT GUTTERLINE PROFILE.
CENTER	CENTER2	ROADWAY CENTERLINE

…

WHITE (#7)	**0.018"**	
NEW TXT	TEXT	TEXT FOR NEW CONSTRUCTION/NOTES
		All Caps – Height: 0.10”
BM-NOTE	TEXT	BENCH MARKS/TBM DESCRIPTIONS AND NOTES
		All Caps – Height: 0.10”
ROW-NEW	PHANTOM2	PROPOSED RIGHT-OF-WAY
NEW	CONTINUOUS	NEW CONSTRUCTION (ROADWAYS, DRIVEWAYS, SIDEWALKS. CURB RAMPS, BIOSWALES …)
RT-GUT-NEW	CONTINUOUS	NEW RIGHT GUTTER LINE PROFILE
LT-GUT-NEW	PHANTOM2	NEW LEFT GUTTER LINE PROFILE
PROFILE	CONTINUOUS	ROADWAY PROFILE
RIDGE	DASHEDX2	DRAINAGE RIDGE LINES, LIMITS OF WORK

…

PEACH (#11)	**0.020”**	
RT-MID-NEW	CONTINUOUS	NEW RIGHT MEDIAN GUTTER LINE PROFILE.
LT-MID-NEW	PHANTOM2	NEW LEFT MEDIAN GUTTER LINE PROFILE.
NEW-UTI	CONTINUOUS	NEW UTILITIES (NEW DRAIN, NEW GAS, …ETC.)

…

MAGENTA (#6)	**0.025"**	
STATION	CONTINUOUS	STATION NUMBERS – (All Caps – Height: 0.20”)
TITLE	TEXT	STREET NAMES/SHEET TITLES (All Caps – Height: 0.30”)
BASELINE	PHANTOM	BASE LINES, MATCH LINES.
BORDER	CONTINUOUS	BORDERS WITH 1.5" MARGIN ON LEFT SIDE AND 0.5" MARGINS ON OTHER 3 SIDES.

1.02 TEXT & LETTERING

The text font shall be ROMANS. The following are actual size of lettering required for City projects. Refer to DOTD Roadway Plan & Preparation Manual for State projects.

HEIGHT	STYLE	OBLIQUING ANGLE	PEN SIZE	OBJECTS
0.10"	*Lower Case with 1st letter Capitalized*	*25 degrees*	*0.006"*	*Existing features*
0.10"	All Caps	0 degree	0.018"	New construction, Notes.
0.20"	All Caps	0 degree	0.025"	Match lines, Station Numbers.
0.30"	All Caps	0 degree	0.025"	Street Names, Sheet Titles, etc.

- Lettering is arranged so that it may be read from left to right without turning the plan from its normal position.
- Lower Case with 1st letter Capitalized shall be used to describe existing topography. (height = 0.10")
- All capital letters (height = 0.10") shall be used to describe new works, proposed construction and modified items.

1.03 DRAWING FILE NUMBER

Drawing File No. shall be assigned by DPW/ Engineering Division and be placed at the bottom right-hand corner and upper left-hand corner of each drawing.

1.04 AutoCAD FILE NUMBER

AutoCAD Files No. shall be named using the project number followed by the sheet number.

1.05 AutoCAD STANDARD LEGEND

The AutoCAD Standard Legend is shown on the attached sheets (See Appendix). The following are standard AutoCAD hatch patterns which may be selected with the hatch command to hatch the relevant areas.

ANSI31	DOTS ANSI34
	NET3
ANSI36	TRIANG ANSI37

Symbols preceded by a block name have been made into AutoCAD blocks and may be called up and inserted into drawings.

CHAPTER II

PREPARATION OF FIELD SURVEY & PRESENTATION OF SURVEYING DATA

The information compiled herein is to be used by the Engineers in the planning and performance of their design work in accordance with the terms in their contract.

2.01 VERTICAL & HORIZONTAL ALIGNMENT:

- The alignment should show the survey base line and its relation to the property line, indicating all PI's, PC's, PT's and curve data (Vert. Curves: PVC - PVI - PVT) (Horiz. Curve: PC - PRC - PCC - PT) together with the necessary reference points. Survey base line must be located where it will not be obliterated by the construction and shall be submitted to the Department of Public Works for approval.
- Stationing on most surveys begin with 100+00 and proceed in northerly or easterly direction.
- Stationing of cross-streets usually start with 50+00 at intersection of the cross street with the project survey line, increasing in one direction from this point and decreasing in the opposite direction.

2.02 TOPOGRAPHY

Topography should include not only the physical features of the terrain but also the location and description of all objects and obstructions which must be considered in the design and construction of the projects, including topography outside of the required right-of-way needed to properly design the project. Physical features of each object shall be identified with size, shape, type, location, elevation, depth, invert, etc. The following are few examples:

- Roadway and Intersecting Streets:
    - Entire intersections must be included, even at the beginning and end of project.
    - Work at intersections must go as far as the first catch basin on the crossing streets (Approx. 40 ft. beyond property lines)
    - Bearings, Distances and Stationing
    - Roadway width and type of materials.
    - R.O.W. width & property lines
- Telephone, Power Poles, Street Lights, Guy wires, etc.: Location, description.
- Drain Lines, Sewer Lines, Water Lines, Gas Lines, Power Lines and other utility installation & their appurtenances:
    - Location, Description, Size, Elevation.
    - Water meters, Manholes, Cleanouts, Valve Boxes, etc.
    - Identify manholes with SWB - numbering system.
- Bridges, Culverts: Location, Description, Length, Width, Height, Size, Water Elevation.
- Lot Lines: Show apparent lot lines and indicate Municipal Number between same.
- Buildings - Residences - Sidewalks - Entrance ways - Steps - Service Stations - Gas Pumps - Underground Tanks - Wash Rack - Driveway Entrance & Exit - Drop Inlets - Signs.
- Fence: Type - Location - Type of Gate.
- Trees: Location - Size - Type.
- Traffic Devices & Parking Control: Traffic Signs - Signals - Detector Loops - Parking Meters.

2.03 LEVELS & CROSS SECTIONS:

Cross sections shall be taken as necessary to establish the flow line elevation. Distance between cross sections shall not exceed twenty-five (25') feet. Six (6) cross sections per sheet are allowable for Boulevards.

- Elevations of following points are required to plot existing profile:
    - Along Property Lines - Street edge of sidewalks - Driveways.
    - Top of curbs - Gutter Bottom - Roadway Center lines.
    - All points of break in the profile.
    - Cross Sections at intersection of all right-of-way lines.
    - Cross Sections along the intersecting streets as necessary to establish flow line elevation.
- Permanent Bench Marks in the area must be approved by the Department of Public Works and shown on the title sheet.
- Temporary or Job Bench Marks:
    - Elevation shall be established from the permanent bench mark elevation,
    - Should not be located on fire hydrants, power poles, or other objects which are subject to be relocated or modified,
    - Shall be shown on plan/profile drawings near its location,
    - Shall not be placed on fire hydrants.

2.04 PLOT OF EXISTING TOPOGRAPHY

- Prior to the pre-design meeting, all existing topography and utility information shall be shown correctly on the drawings in accordance with DPW's AutoCAD Drafting Standard including Standard Legend & Symbols. (See Chapter I)
- DRAWING SIZE: 24"x 36" with 1.5" margin on the left edge and 0.5" on other 3 edges.
- LAYOUT: Layout Streets from West to East or South to North.
- PLAN/PROFILE & CROSS SECTION DRAWINGS: Plot existing topography and existing profiles on plan/profile sheets and plot cross sections on cross section sheets. Each plan/profile sheet should accommodate a distance of five hundred feet (500') of project length.
- BASELINE: The survey baseline is shown by a heavy phantom line with a short vertical line on the upper side of the baseline at each station. At every fifth station, starting at station 0+00, a short vertical line on both sides of the baseline is shown.
- MATCH LINES: Match lines shall not be located within any intersection.
- SCALE: Scale is to be shown at the top right-hand corner of the drawing.
  The following scales are required:

Plan/Profile:	1"= 20' Horiz.	1"= 2' Vert.
Cross Sections:	1"= 4' Horiz.	1"= 2' Vert.

- STREET NAME: Street name (5/16" high) shall be shown for each street on plans (outside of the plan viewport to avoid drawing clutter) above top border line of each PLAN/PROFILE and Cross Section drawing.
- DESCRIPTIONS: Lower Case with 1st letter Capitalized (height = 0.10") shall be used to describe existing topography.
- Descriptions and notes shall be placed outside of roadway area.
- HATCH: Hatch shall be used to indicate type of materials on existing roadway, driveways and sidewalks.
- TRAFFIC SIGNS: Plot all traffic signs on the plans.
- VERTICAL ELEVATIONS: Show existing elevations on plans along property lines and sidewalks.
- MUNICIPAL ADDRESS: Plot outline of houses (mainly the front side) and show municipal address numbers.

CHAPTER III

CONSTRUCTION PLANS & SPECIAL SPECIFICATIONS

3.01 CONSTRUCTION PLANS

- The Engineer shall indicate on plans all work to be done and include in the special specifications detailed descriptions of all special bid items and of standard bid items that need clarification.
- The Engineer shall make sure that the project can be built as designed. The Engineer is responsible for a good design with an appropriate set of plans and specifications.
- The Engineer shall not leave anything for assumption and interpretation. The Engineer is liable for errors and omissions which result in increase of cost.
- The Engineer shall check the plans and specifications thoroughly and submit Roadway Design Checklist to the City.
- Errors and omissions in the plans and specifications discovered subsequent to the acceptance by the Department shall be corrected by the Engineer without additional compensation.
- Prior to final approval, the Engineer are required to make corrections and revise plans and specifications to meet the Departments general requirements.
- Review by the Department of Public Works is for general conformance to the City requirements only. Approval by the Department of Public Works does not relieve the Engineer from their professional responsibilities.

A. TYPICAL DRAWINGS INDEX OF CONSTRUCTION PLANS

DWG. NO.	SHEET LIST TYPE	BASIC REQUIREMENT		
		PRELIMINARY PLANS	PLAN-IN-HAND PLANS	ADVANCE CHECK PLANS
1	TITLE SHEET	x	x	x
2	GENERAL NOTES & LEGEND		x	x
3	SUMMARY OF ESTIMATED QUANTITIES		x	x
4	TYPICAL ROADWAY SECTIONS (No. 4A, 4B, 4C..ect. for multiple sheets.)	x	x	x
5	SPECIAL DETAILS DRAWING		x	x
6	HORIZONTAL & VERTICAL CONTROL DRAWING (Including Base Line & Bench Marks Description & locations)	x		
7	GEOMETRIC LAYOUT (*)	x	x	x
8	DRAINAGE AREA MAPS	x	x	x
101	PLAN/PROFILE DRAWINGS (No. 101, 102, 103, etc. for multiple sheets.)	x	x	x
201	GEOMETRIC LAYOUTS OF INTERSECTIONS (*)			x
301	CROSS SECTION DWGS. (No. 301, 302, 303, etc. for multiple sheets.)		x	x
401	JOINT LAYOUT (*) (for concrete roadways)			x
501	STRIPING PLANS (**)			x

601	STREET LIGHTING PLAN (**)			x
701	CONSTRUCTION PHASING & (**) DETOUR PLANS			x
801	TREE PROTECTION PLANS & DETAILS			x
901	STORMWATER POLLUTION PREVENTION PLAN			x
NOTES: 1. Additional plans will be submitted if required by DPW. 2. Completed set will be required for Advance Check & Final Plans				
(*) Verify with the DPW Project Manager (**) Verify with Traffic Engineering Division				

A.1. TITLE SHEET - Title sheet shall consist of the following:

- LAYOUT MAP: The layout map is placed in the center of the title sheet. The scale depends primarily on the project length and the area where the project streets are located. The maximum size is about 7"x20" with a border around. The layout map shall include: Proposed Construction and/or Limits of Project - Station at beginning and end of each street - Exceptions - Equations -North Arrow - Length of each street and total project length.
- CAPTION: The project caption, placed directly above the layout map, includes the project name - the project number and the street names.
- VICINITY MAP: The vicinity map is approx. 4 inches in diameter with a border and shall be placed in the upper right corner. It shall include a portion of Lake Pontchartrain, I-10, I610 & Mississippi River. The north arrow is shown adjacent to the Vicinity Map on the right side and the vicinity map is always oriented so that the north arrow points upward.
- INDEX TO SHEETS.
- BENCH MARK DESCRIPTION: Use NAVD 88 Elevations & indicate Year of Adjustment.
- DESCRIPTION OF CONSTRUCTION: Fully describe type of construction.
- TRAFFIC DATA AND DESIGN SPEED
- SIGNATURE SPACES:
  - Provide signature spaces as instructed by the DPW Project Manager.
  - Add following: **PLAN PREPARED BY**
    AND RECOMMENDED FOR APPROVAL:
- Following note to be shown at the bottom left-hand corner:
  "DEPARTMENT OF PUBLIC WORKS GENERAL SPECIFICATIONS F O R STREET PAVING, LATEST EDITION, CITY OF NEW ORLEANS, SHALL GOVERN ON THIS PROJECT EXCEPT AS AMENDED BY SPECIAL PROVISIONS AND/OR SUPPLEMENTAL SPECIFICATIONS" (For City Projects)
- Following note to be shown at the bottom right-hand corner:
  "REVIEW AND APPROVAL OF THESE PLANS AND SPECIFICATIONS BY THE DEPARTMENT OF PUBLIC WORKS AND THE SEWERAGE & WATER BOARD IS FOR GENERAL CONFORMANCE TO THE PROJECT REQUIREMENTS ONLY AND DOES NOT RELIEVE THE ENGINEER OF THEIR RESPONSIBILITY FOR THE RELEVANCE AND ACCURACY OF ALL ITEMS AND DETAILS INCLUDED IN THESE PLANS AND SPECIFICATIONS"
- DWG. FILE NO. (given by DPW) shall be shown outside of border at the bottom right & at the top left corner of each sheet.

A.2. GENERAL NOTES & LEGEND

- General Notes, Traffic Notes, General Notes on Sewerage, Water and Subsurface Drainage, Horticultural Requirements, and Street Lighting are to be shown on this sheet.
- DPW's Standard Legend & Abbreviation shall be included.

A.3. SUMMARY OF BID ITEMS (ESTIMATED QUANTITIES)

- Quantities for each item must be shown on this sheet.

A.4. TYPICAL ROADWAY CROSS SECTIONS

- Typical Cross Section (New & existing): Right-of-Way, Roadway, Sidewalks, Dimensions, Cross slope and/or parabolic crown, type of material (identify each layer), sub-surface utilities.
- Shown Scale Used

A.5. SPECIAL DETAILS DRAWING(S)

- Drain Trench, Sewer Trench Typical Sections if not included in standard plans.
- Hinged Connection in Canal Wall.
- Sidewalk bridging detail, root pruning detail, tree protection details.
- Any other approved special details & sections as required for the construction shall be included.

A.6. HORIZONTAL & VERTICAL CONTROL DRAWING (See Chapter II)

- Shall include Base Line Layout, Control Points, Permanent Bench Marks & Temporary Benchmarks.

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A.7. GEOMETRIC LAYOUT (May be combined with Horiz. & Vert. Control Dwgs.)

A.8. DRAINAGE AREA MAPS (Same format as LADOTD Hydraulics Manual)

A.9. PLAN/PROFILE DRAWINGS

1) FORMAT & DRAFTING STANDARDS (See Chapter I: AutoCAD Drafting Standard and Appendix A: Standard Legend & Symbols.)

- A single plan and profile per sheet is generally used, but a plan with double profile sheets may be used for projects without new underground utilities.
- TITLE BLOCK: Name of the Engineer - Schedule of revisions – Engineer's stamp - Description of the sheet - Date - Designed by - Checked by - Drawing No. - Project No. – North Arrow - Scale.
- PROJECT NUMBER: Project No. is to be shown in the extreme upper right corner of each drawing.
- DWG. FILE NO. (given by DPW) shall be shown outside of border at the bottom right & at the top left corner of each sheet.
- STREET NAME: Street name shall be shown for each street on plans (outside of the plan viewport to avoid drawing clutter.)

2). GENERAL REQUIREMENTS:

- Layout Streets from West to East or South to North.
- Station at Beginning and End of Project - Temporary Bench Marks.
- Ending new pavement at property lines, and schedule transition beyond property line.
- Property Lines - Right-of-Way
- Roadway Width and Distance from Base Line.
- Survey Base Line - PI's, PC's, PT's & Stations.
- All Curve Data - PI's, PC's, PT's & Stations, Equations & Exceptions.

TOPOGRAPHY (See Chapter I)

- Existing and Proposed Curbs: Type - Replacement - Remove - Adjustment - Reset (Gutter line is not required on plans if double lines are used to indicate roadway curb.)
- Catch Basins, Water Meters, Manholes, Cleanouts, Valve Boxes, etc. are to be identified as Replacement - Remove - Adjustment – Reset.
  In addition, following information must be provided: Type, Location, T.C. Elev., Invert.
- Drain Lines, Sewer Lines, Water Lines, Gas Lines, SWB Power Lines and other utility installation & their appurtenances are to be identified as Replacement – Remove - Point repairs. In addition, following information must be provided: Size, Type, Location, Slope
- Driveways: Width, Material, Replacement, Remove.
- Curb Ramps, Power Poles & Trees: Location, Size, Type.
- Bridges & Culverts: Location, Description, Length, Width, Height, Size, Water Elevation.
- Fence: Type, Location, Type of Gate.
- Traffic Devices & Parking Control: Traffic Signs - Signals - Detector Loops - Parking Meters
- New descriptions and notes are to be placed on the outside of roadway area.
- For new concrete surface, indicate heavy or light broom finish.
- Profile (see Section VI below)
- Bike Racks: Type & Location.

UTILITIES

- All existing underground utilities for which elevations have been established be plotted in the plan and in the profile.
- EXISTING UTILITIES: All existing utilities shall be identified as to remain, to be removed **(RM**), abandoned, adjusted or relocated.

- PROPOSED UTILITIES: All proposed utilities shall be described by station, type, size, diam., length, slope, depth & invert, etc.

Ex. # 1	REQ'D. NO. 1 CB. @ STA. 100+55 INV. +12.22'
Ex. 1A	REQ'D. DBL. MOUNT. CB. @ STA. 100+55, INV. +12.22'
Ex. 1B	REQ'D. CB. – TYPE A @ STA. 100+55, INV. +12.22'
Ex. 2	REQ'D. NO. 1 D.MH. @ STA. 100+55, INV. +12.22'
Ex. 2A	REQ'D. SMH. @ STA. 100+55 INV. +12.22'
Ex. 3	REQ'D. 8" WM. x 155 FT.
Ex. 4	REQ'D. 8" SL. x 155 FT. @ S=0.33% (6.1' – 9.0 ' DEEP)
Ex. 5	REQ'D. 18" RCP x 350 FT. @ S=0.25%
Ex. 6	REMOVE EXISTING & REPLACE W/ 8" SL

x 155 FT. @ S=0.33% (6.1' – 9.0 ' DEEP)

- Water lines smaller than eight inches in diameter are to be replaced with a water line eight inches or larger (check with SWB.)
- When a section of existing 12 in drain line is replaced with a new 15-inch drain line in the project limits, a connecting manhole is required.
- New drain line - Min. 15-inch diam.; new lateral - Min. 12-inch diam.
- CATCH BASINS: Catch Basin (CB) shall be located as required by drainage design (approximately 200 feet on center) & CB on crossing street & construction limit shall be shown.
- Catch Basins are required at all intersections, show invert elevations.
- Catch basins shall be installed at the beginning and at the end of each block.
  (approx. 30 feet from property lines)
- Intermediate CB shall be mountable type
- Use Vertical type CB with transition if mountable curb is selected.
- MANHOLES: Location of Drain MH shall be based on maximum pipe run shown on SWB Table I in the Appendix.
  Ex. 15 inches Diameter – 150 feet
  18 inches Diameter – 300 feet (DOTD Hydraulic Manual, 2011 Edition, Page 124)
- All drain, water & sewer utilities shall be reviewed by SWB during each design phase.
- New Manhole is required for each existing water valve.

3). INTERSECTIONS

- Entire intersections at the beginning and end of project must be included.
- Provide bearings & stationing at intersections, including radius of intersection corners and all curves.
- In case the intersecting street has been constructed recently, the roadway of the current project must be adjusted at the intersection to ensure a smooth transition and not stop at the property line.
- Work at intersections must go as far as the first catch basin on the crossing streets (Approx. 40 ft. beyond property lines)
- Curb ramps are to be installed in all intersections. If sidewalks do not exist, provide a slope transition panel (1:12 max.) to natural ground to avoid pedestrian hazards.
- At intersections, a gutter bottom must be included to avoid subsidence and water ponding.
- Curbs should be straightened out to have a uniform roadway width.
  (Do not allow the curb to flare in or out at intersections.)

4) PROFILES: Profiles that should be plotted on plan/profile sheet are as follows:

4 a - RECONSTRUCTION PROJECTS:

a.1) Roadway Streets without median.

- Existing property line or proposed ROW profiles (two sides)
- Existing sidewalk profiles (two sides)
- Proposed gutter line profiles (two sides - one required if same profile on both sides)

a.2) Roadway Streets (with median). Roadway on each side of median shall include:

- Existing property line or proposed ROW profile (two sides).
- Existing sidewalk profile (two sides).
- Existing median gutter line profile (two sides).
- Proposed median gutter line profile. Longitudinal slope of median gutter line profile must be

constant in each block (two sides).
- Proposed property gutter line (flow line) profile (two sides).

4b - REHABILITATION PROJECTS:

b.1) Roadway Streets without median.
- Existing sidewalk profiles (two sides)
- Existing gutter line profiles (two sides)
- Proposed gutter line profiles (two sides - One required if same profile on both sides)

b.2) Roadway Streets (with median). Roadway on each side of median shall include:
- Existing property gutter line profile.
- Existing sidewalk profile.
- Existing median gutter line profile.
- Proposed median gutter line profile. Longitudinal slope of median gutter line profile should be constant in each block.
- Proposed property gutter line (flow line) profile.

5) GENERAL

- Indicate on the proposed profile: Elevation of high & low points, PVI's Station, Slopes & Length of vertical curves (if changes in slope larger than 1 percent)
- Identify each invert elevation on profile with North or South, East or West, instead of right and left.
- Roadway grades (gutter line profile) are plotted with a heavy solid line. The minimum longitudinal slope of gutter line profile shall be 0.35 percent (except median gutter line.)
- At the intersection with other streets, gutter line profile is to continue along the curb radius to the end (PC) and from there across the intersecting roadway (dashed-line).
- Use different line type for each existing profile (See AutoCAD Drafting Standards, Chapter I)
- Catch basins and manholes are to be shown on profiles.
- Plot the outer edge of sidewalks and gutter line profile to check and ensure proper drainage. In absence of sidewalks, the property line profiles should be plotted.
- In certain cases, where sidewalks are too low due to subsidence or broken concrete, or lowering gutter line profile would be impossible or too costly, the low point should be disregarded in designing gutter line profile. Water trapped behind curb could be drained by an area drain or sidewalks shall be rebuilt at a higher elevation.

A.10. GEOMETRIC LAYOUTS OF INTERSECTIONS

- Expanded geometric layouts of intersections are placed in the plans to supplement the plan/profile sheets. Layouts are usually drawn to a larger scale than the plan/profile sheets giving a clear, understandable, and more detailed picture of a particular horizontal geometric configuration.
- An individual plan at each intersection to show spot elevations shall be included at the discretion of the DPW Project Manager.

A.11. CROSS SECTIONS (Scale: 1" = 4' Horiz. and 1" = 2' Vert.)

- Cross sections within proposed ROW and/or property lines shall be shown and shall not exceed 25 feet between sections.
- Cross Sections shall be taken at the intersection of all ROW lines and at all points of break in

the profile. Work at intersections must go as far as the first catch basin on the crossing streets (Approx. 40 ft. beyond property lines)

- Dashed lines for existing roadway and sidewalks.
- Solid lines for new roadway and proposed items.
- Plot all sidewalks.
- Minimum eight cross sections per drawing (for minor streets).

A.12. JOINT LAYOUT (Req. for Concrete Roadways)

A.13. STRIPING PLAN (Contact Traffic Engineering Division)

A.14. STREET LIGHTING PLANS (Contact Traffic Engineering Division)

A.15. CONSTRUCTION PHASING/TRAFFIC DETOUR/CONTROL PLAN (Req'd. for Major Streets)

A.16. TREE PROTECTION PLANS & DETAILS (Contact Department of Parkways & Parks)

A.17. STORMWATER POLLUTION PREVENTION PLAN

3.02 SPECIAL SPECIFICATIONS

Special Specifications shall be prepared by the Engineer to describe special materials, all proposed work and project requirements not covered by the General Specifications, including detailed descriptions of all approved special bid items and of standard bid items needing clarification. Special provisions/ specifications for nonstandard work or materials are to be submitted to DPW for review and approval.

CHAPTER IV

DESIGN CRITERIA

4.01 STREET GEOMETRIC DESIGN

- References:
  - Department of Public Works Typical Sections,
  - Subdivision Regulations – City Planning Commission,
  - Major Streets and Expressways Typical Cross Sections (Adopted Nov. 17, 1982),
  - LADOTD Design Standards, and
  - AASHTO Design Guidelines

- Roadway width is to be 26 feet for 50 ft. ROW. (see City Standard Plans),
- New roadways cross slope shall be 1.5 percent minimum (or 1.25 percent for parabolic crown),
- The minimum slope of gutter line profile shall be 0.35 percent (except median gutter line),
- At intersections, minimum radius must be adequate for fire trucks turning path as determined by the Engineer.
- Gutter bottoms are to be included to avoid subsidence and water ponding,
- Any fire lane longer than 100 feet shall be connected at both ends to a dedicated street or be provided with a turnaround (cul-de-sac) with an outside radius of 50 feet minimum. The ROW for the cul-de-sac shall have a radius of 62 feet minimum,
- Curbs are to be designed in accordance with the Standard Drawings (Four inch mountable in residential areas and six inch vertical in commercial/business area. Along median, curbs will be eight (8") inch vertical),
- Sidewalks: Minimum width shall be five feet (or seven feet if placed adjacent to street curbs). Cross slope shall be 2 percent maximum. Longitudinal slope shall be 8.33 percent (1:12) maximum.
- Curb ramps are to be installed in all intersections. If sidewalks do not exist, provide a slope transition panel (1:12 maximum) to natural ground to avoid hazards for pedestrians.
- Slope of all driveways shall be 10 percent maximum.

4.02 STREET PAVEMENT DESIGN

- The design of pavement structures is to conform to the requirements specified in the Department of Public Works General Specifications for Street Paving, latest edition, as well as the AASHTO guidelines and the recommendations of the Portland Cement Association and the Asphalt Institute. The future roadway usage is also a component in street pavement design

4.03 PEDESTRIAN and BICYCLE FACILITIES

- Pedestrian Facilities are to be designed in accordance with specific requirements of the proposed Public Rights of Way Accessibility Guidelines (PROWAG), Chapter R3: Technical Requirements. The PROWAG states that "all newly constructed facilities, altered portions of existing facilities, and elements added to existing facilities for pedestrian circulation and use located in the public right-of-way shall comply with the requirements."

- Design of Bicycle Facilities shall be in accordance with New Orleans Bikeway Design Guide and Standard Details.

4.04 DRAINAGE DESIGN

- The design of drainage system shall be in accordance with LaDOTD Hydraulics and Drainage Manual unless otherwise specified by the Sewerage & Water Board of New Orleans. Drainage design shall be reviewed and approved by the S&WB.

4.05 PRESERVATION AND REHABILITATION OF HISTORIC ROADWAY & ROADSIDE ELEMENTS

The roadway & roadside elements contribute to the integrity of the historic districts should be preserved as determined by the proper authorities.

The Engineer will contact the proper authorities in order that an appropriate assessment may be made to determine the disposition thereof and necessary actions relative to the site.

Unless otherwise required by the proper authorities, replaced materials shall be in-kind. If replacement is not feasible for safety reasons, the Engineer shall propose solutions for consideration.

New Orleans Historic Districts specified by Historic District Landmarks Commission (HDLC) are listed as follows:

Algiers Point	Bywater	Canal Street	St. Charles Historic District
Carrollton	Esplanade Ridge	Faubourg Marigny	Lafayette Square Historic District
Garden District	Holy Cross	Irish Channel	Lower Garden District
Mid City	Parkview	Picayune Place	Treme Historic District
Uptown			Warehouse District.

The Engineer shall contact HDLC for further information.

4.06 RAILROAD CROSSING

- The design of railroad crossings shall be in accordance with the following:
  Railroad - Highway Grade Crossing Handbook, Chapter IV: Identification of Alternatives (US Department of Transportation - Federal Highway Administration)

CHAPTER V

GENERAL SPECIFICATIONS & STANDARD DETAILS

5.01 CITY OF NEW ORLEANS GENERAL SPECIFICATIONS FOR STREET PAVING and DEPARTMENT OF PUBLIC WORKS STANDARD PLANS

All street construction projects shall conform to the City of New Orleans General Specifications for Street Paving & Department of Public Works Standard Plans unless instructed otherwise.

5.02 SEWERAGE AND WATER BOARD OF NEW ORLEANS GENERAL SPECIFICATIONS and STANDARD DRAWINGS.

All work to be done to the sewerage, drainage and water distribution systems shall conform to the Sewerage and Water Board of New Orleans Standard and Specifications unless instructed otherwise.

5.03 LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT STANDARDSPECIFICATIONS FOR ROADS AND BRIDGES and Standard Drawings.

If the City of New Orleans specifications and details do not cover the subject, the LADOTD standards will govern.

APPENDICES

Appendix A: AutoCAD Standard Legend

Appendix B: Design Information from Sewerage & Water Board

Appendix C: City Standard Plans (see DPW's website)

Appendix A: AutoCAD Standard Legend

AutoCAD STANDARD LEGEND

HATCH PATTERN/ BLOCK NAME		
		EXISTING (FINE LINE)
		NEW CONSTRUCTION (BROAD LINE)
SPECIAL		REQUIRED CONCRETE PAVEMENT
LINE		REQUIRED ASPHALT ROADWAY
ANSI36		REMOVAL OF CONCRETE PAVEMENT
SPECIAL		EXISTING ROADWAY TO REMAIN (SECTION ONLY)
ANSI37		EXISTING ASPHALT ROADWAY TO BE REMOVED
TRIANG		REQUIRED SHELL OR SAND/SHELL
ANSI34		ASPHALT TRANSITION
ANSI31		COLD MILL/COLD PLANING
TRANS		BINDER ADJUSTMENT
* BRIDGE		BRIDGE
* RAILROAD		RAILROAD
* LEVEE		LEVEE
		FENCE LINE
* TREE		TREE
* HEDGE		HEDGE
		BUILDING
		CULVERT
		BASE LINE
		EXISTING RIGHT-OF-WAY
		CENTER LINE
	(D) D12"	DRAIN LINE OR STORM SEWER SMALLER THAN 36" (SHOW SIZE BESIDE SYMBOL)
	(D) D42"	DRAIN LINE OR STORM SEWER 36" AND LARGER (SHOW SIZE BESIDE SYMBOL)
	(S) S8"	SANITARY SEWER LINE (S) OR SEWER FORCED MAIN (SFM) SMALLER THAN 12"
	(S) S12"	SANITARY SEWER LINE (S) OR SEWER FORCED MAIN (SFM) 12" AND LARGER

* DENOTES AN AutoCAD BLOCK

Sheet 1 of 3

BLOCK NAME

	Ⓦ— — W8"– — –	WATER MAIN SMALLER THAN 12"
	Ⓦ= =W12"= = =	WATER MAIN 12" AND LARGER
	Ⓖ— — G2" – — –	GAS MAIN SMALLER THAN 12"
	Ⓖ= =G12"= = =	GAS MAIN 12" AND LARGER
	– — – T – — –	UNDERGROUND TELEPHONE CABLE
	– — – E – — –	UNDERGROUND ELECTRIC LINE (SPECIFY S&WB OR OTHER)
	– — – TV – — –	UNDERGROUND TELEVISION CABLE
MCB	—▭—	PROPOSED MOUNTABLE CATCH BASIN (MCB)
VCB	—▬—	PROPOSED VERTICAL CATCH BASIN (VCB)
MH	●	PROPOSED MANHOLE
EXISTCB	▭	EXISTING CATCH BASIN
DI	▥ / ▥	DROP INLET (EXISTING/PROPOSED)
WVMC	—⋈—	WATER VALVE MANHOLE (CIRCULAR)_
WVMR	—▭⋈—	WATER VALVE MANHOLE (RECTANGULAR)
DRAINMH	Ⓓ	DRAIN MANHOLE
SEWERMH	Ⓢ	SEWER MANHOLE
WATERMH	Ⓦ	WATER MANHOLE
GASMH	Ⓖ	GAS MANHOLE
TRMH	Ⓣ	TRAFFIC MANHOLE
TELMH	Ⓣ	TELEPHONE MANHOLE
TGMH	Ⓤ	TELEGRAPH MANHOLE
ELECMH	Ⓔ	ELECTRIC MANHOLE
UV	—⋈—	UTILITY VALVE

Sheet 2 of 3

BLOCK NAME		
WM	⊙	WATER METER
RMB	⊠	RESIDENTIAL MAIL BOX
TIB	[T]	TELEPHONE INTERFACE BOX
COS	c Ⓢ o	CLEAN OUT FOR SEWER
COD	c Ⓓ o	CLEANOUT FOR DRAIN c Ⓓ o
TVB	TV	CABLE TV BOX
TSB	TSB	TRAFFIC SIGNAL BOX
TCB	TCB	TRAFFIC CONTROL BOX
UP	⊕	UTILITY POLE
TRASH	Ⓡ	TRASH RECEPTABLE (SUB-SURFACE)
GP	⊙— ≺	GUY POLE
GWA	·— ≺	GUY WIRE & ANCHOR
PARKM	Ⓟ	PARKING METER
	═══	EXISTING CURB (SPECIFY TYPE)
	▬▬▬	REQUIRED CURB (SPECIFY TYPE)
LS	⊡	LIGHT STANDARD
TSS	⊐□	TRAFFIC SIGNAL STANDARD
EFH	-⊙-	EXISTING FIRE HYDRANT
PFH	-●-	PROPOSED FIRE HYDRANT
TS	⊙	TRAFFIC SIGN
IP	●	IRON PIPE OR IRON ROD
CROSS	✣	CROSS CUT IN CONCRETE

BY: T.T.N.
DATE: JAN 21, 1997

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Appendix B: Design Information from Sewerage & Water Board

16. D. 9 TABLE I

INTERNAL DIAMETER OF PIPE IN INCHES	MINIMUM THICKNESS OF BARREL IN INCHES	AREA SQ. FT.	VELOCITY F.P.S.	S= MIN. GRADE N=.013 CU. FT./SEC.	WIDTH OF TRENCH IN FEET	F.B.M. PER FT.	CLAM SHELL CU. YDS. PER. FT.	MINIMUM PIPE GRADES	PIPE RUN & OTHER DATA
6"	1" *	0.20	0.90	0.18	1.5'	—	—	—	
10"	1⅛" *	0.55	2.31	1.27	2.1'	7.53'	0.037'	0.0033	150'
12"	1¼" *	0.79	2.27	1.79	2.4'	8.13'	0.069'	0.0025	200'
15"	1½" *	1.23	2.41	2.96	2.8'	8.93'	0.079'	0.0021	250'
18"	1⅝" *	1.77	2.45	4.34	3.2'	9.73'	0.096'	0.0017	250'
21"	2¼" *	2.41	2.37	5.71	3.6'	10.53'	0.113'	0.0013	300'
24"	3"	3.14	2.39	7.50	4.1'	11.53'	0.147'	0.0011	350'
27"	3¼"	3.98	2.46	9.79	4.5'	12.33'	0.181'	0.0010	
30"	3½"	4.91	2.64	12.96	4.8'	12.93'	0.222'	0.0010	
36"	4"	7.07	2.85	20.15	5.6'	14.53'	0.303'	0.00091	
42"	4½"	9.62	3.15	30.30	6.5'	18.00'	0.445'	0.00091	
48"	5"	12.57	3.45	43.37	7.0'	19.00'	0.503'	0.00091	
54"	4¾"	15.90	3.73	59.31	7.5'	20.00'	0.670'	0.00091	
60"	5"	19.64	4.00	78.56	8.5'	22.00'	0.840'	0.00091	
66"	5½"	23.76	4.26	101.22	9.0'	23.00'	0.864'	0.00091	
72"	6"	28.27	4.52	127.78	10.0'	25.00'	1.019'	0.00091	
84"	8"	38.48	5.01	192.78	11.0'	27.00'	1.186'	0.00091	
96"	9"	50.27	5.47	274.98	12.0'	29.00	1.291'	0.00091	
	* NON-REINFORCED								

A. MINIMUM GRADES ON SEWER LINES

Diam.	8”	10”	12”	15”	18”
Grade	0.33%	0.25%	0.21%	0.167%	0.133%

B. WATER MAINS – MINIMUM COVER & CLEARANCE

Diam.	8”	12”	Vert. Clearance	Crossing
Cover	3.5 ft.	4.0 ft.	6”	Over other utilities
Horiz. Clearance	3.0 ft.	3.0 ft.	12”	Under other utilities
	6.0 ft.	6.0 ft.	18”	Between W.M. & Sewer M.

C. DRAIN LINES, CATCH BASINS & MANHOLES

Drain Lines: 2.5 ft. Minimum Cover

CATCH BASINS (Top of Curb to Gutter Bot.)		MANHOLES	
No. 1	9”	No. 1	Up to 24” Pipes
No. 2	15”	No. 2	From 27” to 30” Pipes
No. 3	18”	No. 3 (Inside Diam. = 60”)	36” Pipes and larger

…