

**POLICY AND PROCEDURES MANUAL**  
**FOR INSPECTION OF**  
**LOCALLY FUNDED CONSTRUCTION PROJECTS**



**City of Indianapolis**

**Department of Public Works**

**Engineering Division**

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# Table of Contents

<b><u>Chapter/Description</u></b>	<b><u>Page</u></b>
<b>Chapter 1</b> Introduction.....	1
<b>Chapter 2</b> Project Initiation .....	5
2-1 Gather and Review Documents.....	5
2-2 Gather Names and Contact Persons.....	6
2-3 Project Status Checklist.....	6
2-4 Submittals .....	7
2-5 Field Visit .....	7
2-6 Inspection Kick-Off Meeting.....	7
2-7 Levels of Inspection .....	9
<b>Chapter 3</b> Forestry.....	12
3-1 Project Implementation .....	12
3-2 Project Warranty Period and Close-Out .....	13
3-3 Root Protection Table.....	13
3-4 New Tree Locating Criteria.....	14
3-5 Tree Planting Operations Scheduling.....	15
<b>Chapter 4</b> Pre-Construction Meeting.....	16
Agenda .....	16
Sign-In Sheet .....	16
Permit Summary.....	16
Meeting Minutes Template .....	17
<b>Chapter 5</b> Project Filing System .....	18
Project & Final Construction Records Filing System Template .....	19
<b>Chapter 6</b> Field Reports, Records and Daily Work.....	22
6-1 Field Observation .....	22
6-2 Progress Meetings .....	22
6-3 Inspectors Daily Report and other Project Forms.....	22
6-4 Daily Work Report.....	24
6-5 Daily Progressive Record.....	24
6-6 Weekly Construction Reports .....	24
6-7 Field Books.....	25
6-8 Certified Payroll.....	25
<b>Chapter 7</b> Testing.....	26
7-1 Quality Control Sampling and Testing .....	26
7-2 Independent Assurance Testing .....	27
<b>Chapter 8</b> Traffic Control .....	28
8-1 Checking of Construction Signs and Barricades.....	28
8-2 Notification of Road or Bridge Closure or Restriction.....	28
8-3 Indiana Manual on Uniform Traffic Control Devices (IMUTCD) .....	28
<b>Chapter 9</b> Contractor Application for Payment.....	29
Pay Application procedure .....	29
Subcontractor/Subconsultant Payment Report.....	29
<b>Chapter 10</b> Change Order Procedures .....	30

<b><u>Chapter/Description</u></b>	<b><u>Page</u></b>
<i>10-1 Introduction</i> .....	30
<i>Field Order</i> .....	30
<i>10-2 Changes Involving Cost and/or Time</i> .....	30
<i>Request for Proposal</i> .....	31
<i>Work Directive Change</i> .....	31
<i>Change Order</i> .....	31
<b>Chapter 11 Project Close-Out</b> .....	32
<i>11-1 Substantial Completion</i> .....	32
<i>11-2 Punch List</i> .....	32
<i>11-3 Final Quantities</i> .....	32
<i>11-4 Project As-Built Drawings</i> .....	32
<i>11-5 Contractors Retainage</i> .....	34
<i>11-6 Contractors Final Completion and Payment</i> .....	34
<i>11-7 Final Construction Records</i> .....	34

## Chapter 1 Introduction

This policy and procedure manual is to provide guidance to the requirements for on-site resident inspection of locally funded bridge, curb and sidewalk, road, storm, and traffic signal infrastructure construction projects. This manual outlines the basic requirements for full and part-time inspection, documentation, filing, and testing procedures adopted by the City of Indianapolis (OWNER). Nothing in this manual shall operate as or be construed as modifying, supplementing, or otherwise changing or altering the provisions of the Contract Documents between the Contractor and the OWNER, including, without limitation, Article 8 of the General Conditions or the provisions of the Agreement between the Inspection Consultant and OWNER.

The Inspection Consultant shall follow the policies and procedures contained in this manual and the requirements of the Inspection Agreement with the OWNER. Any deviations to these policies and procedures must be discussed and approved by the OWNER's Construction Administrator prior to implementation.

The following manuals shall be used as reference material:

City of Indianapolis Standard General Conditions for Construction Contracts (most current version)

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

City of Indianapolis, Department of Public Works (DPW) Quality Control Sampling and Testing Frequency Manual

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

Department of Public Works (DPW) Storm Sewer Design and Construction Standards  
Indianapolis Sanitary Sewer Design and Construction Standards

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

Department of Public Works (DPW) Design Memorandums

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

Department of Public Works (DPW) Right-of Way Regulations

<http://www.indy.gov/eGov/City/DCE/Forms/Infrastructure/REGULATIONSFORACTIVITIESWITHINPUBLICRIGHTFebruary2007.pdf>

CEG Sanitary Sewer Design and Construction Standards

<http://www.citizensenergygroup.com/For-Partners/Contractors-Builders/Permits-and-Forms?option=a>

Indiana Department of Transportation (INDOT) Standards, Specifications and Provisions

<http://www.in.gov/dot/div/contracts/standards/>

Indiana Department of Transportation (INDOT) Safety Manual

[http://www.in.gov/indot/files/Safety\\_and\\_Health\\_Manual.pdf](http://www.in.gov/indot/files/Safety_and_Health_Manual.pdf)

Indiana Department of Transportation (INDOT) Certified Technician Program (CTP) Manuals

1. Hot Mix Asphalt Paving
2. Concrete Paving
3. Bridge Construction/Deck Repair
4. Construction Earthwork
5. Construction Layout/Measurement
6. Construction Procedures 1 and 2

<http://www.in.gov/indot/2403.htm>

Indiana Manual on Uniform Traffic Control Devices (MUTCD)

<http://www.in.gov/dot/div/contracts/design/mutcd/mutcd.html>

Americans with Disabilities Act (ADA) Guidelines

[https://www.ada.gov/2010ADASTandards\\_index.htm](https://www.ada.gov/2010ADASTandards_index.htm)

American Public Works Association (APWA), Public Works Construction Inspection Student Manual

<http://www.apwa.net>

The following definitions will be used in this manual:

Construction Superintendent - Person in the field responsible for all activities of the Contractor.

Contract Information Book (CIB) – The contract book with all OWNER’S project requirements including the bid front end documents, technical specifications and special conditions.

Design Engineer - Engineer who prepared the Contract Documents, plans and specifications for the project.

Inspection Consultant - Consulting engineering firm responsible for the construction inspection services during the project.

Inspection Manager - Person in the consultant's office responsible for construction inspection of the project, the Resident Project Representative, and all Inspectors.

Inspector - Person responsible for inspecting the contractor's work activities under the direction of the RPR.

Office of Minority and Women Business Development (OMWBD) - The City of Indianapolis business opportunities office for minority, women, veteran, and disability owned business enterprises.

OWNER - The City of Indianapolis.

Professional Services Agreement (PSA) – The Contract for Inspection Services between the OWNER and the Inspection Consultant.

Project Manager (PM) - OWNER’S employee or contractual employee directly responsible for monitoring the construction and inspection of the project.

Resident Project Representative (RPR) - Lead Inspector responsible for all field inspection operations.

Inspection activities shall be conducted in accordance with the provisions of all of the Contract Documents including the City of Indianapolis Standard General Conditions for Construction Contracts (General Conditions).

The City of Indianapolis Standard General Conditions can be obtained online via the City’s website:

<http://www.indy.gov/eGov/City/OFM/Purch/Bids/Pages/gen-conditions.aspx>

All assigned project staff must read and become completely familiar with all provisions of the Contract Documents.

For part-time inspection agreements, the Inspection Consultant's Professional Services Agreement, Attachment A, will define the Inspection Consultant's responsibilities with respect to job type AL – Alley Repair, BK – Brick Repair, BM – Bridge Maintenance, BR – Bridge Replacement, CL – Culvert, CW -Curb and Sidewalk, ED –Economic Development, LD –Levee Drainage, PA –Parks Department, RS – Resurfacing, SD – Stormwater Surface Drainage, ST – Intersection Improvement, TR – Intersection Improvements, TS – Traffic Signals. Section 2-7 further defines the level of inspection requirements on a per individual task basis. These sheets are to be used as a guide and indicate the MINIMUM requirements the OWNER expects for each project. When clarification is needed, the RPR shall ask the Project Manager for further direction.

For On-Call Inspection Consultant Professional Services Agreements, Project Manager and Inspection Consultant will review each project and adjust the respective forms to render the requirements needed for the project.

## Chapter 2 Project Initiation

### 2-1. Gather Documents and Review

The RPR obtains all project documents required for the construction and inspection. Such documents include the Contract Documents, which are: plans, addenda, and the contract information book (CIB). They should be available from the Project Manager approximately 3 weeks prior to the bid opening date.

The RPR also needs to gather all documents referenced in the CIB and the plans. The RPR shall thoroughly review this information, make a list of all documents required for the project, and obtain the latest edition of each at the time of the bid opening date. The following is a partial listing of necessary documents:

1. Scope of Work from the Inspection Professional Services Agreement (PSA)
2. Design Engineer's quantity computations (book)
3. Geotechnical Report (if applicable)
4. Pavement Cores (if applicable)
5. City of Indianapolis, Department of Public Works, Indianapolis Storm Water Design and Construction Standards
6. Citizens Energy Group (CEG) Sanitary Sewer Design and Construction Standards (if applicable)
7. INDOT Standard Specifications, as referenced in the Contract Documents
8. INDOT Supplemental Specifications
9. INDOT Road and Bridge Standard Drawings
10. City of Indianapolis, Department of Public Works, Quality Control Sampling & Testing Frequency Manual Current Edition
11. City of Indianapolis, Department of Public Works, Transportation Section Standards Manual
12. City of Indianapolis Standard General Conditions
13. Utility Relocation Plans

RPR and Inspectors should become completely familiar with all documents necessary for the inspection and construction of the project prior to commencement of construction. Links to most of the documents referenced above can be found in Chapter 1 or through the DPW website at the following link:

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

The following are documents the RPR should obtain from the OWNER's Project Manager and become familiar with. The Documents will be available after the opening of bids:

1. Contractor's bid
2. Contractor's Post-Bid
3. Contractor's executed Agreement with the OWNER
4. Bid tabulation for the project
5. Purchase Order



## 6. Notice to Proceed (NTP)

RPR shall notify OWNER's Project Manager, in writing, as soon as possible if any problems or discrepancies are found during review of all of the project documents.

### **2-2. Gather Names of Contact Persons**

RPR develops a list containing the name, address, telephone number, and email of all contact persons involved in the project.

The list should contain at a minimum, the following:

1. Inspection Project Manager
2. Resident Project Representative
3. Inspectors
4. OWNER's Project Manager
5. Design Engineer
6. Construction Superintendent
7. Construction Foreman
8. Utility Company Representatives
9. Utility Company Emergency Numbers
10. Indianapolis Public Information Officer
11. Independent Assurance Testing Agency for OWNER
12. Emergency Numbers for Police, Fire, and Medical
13. Contractor's 3 emergency contact persons with phone numbers (Must be available 24 hours a day, 7 days a week)

### **2-3. Project Status Checklist**

After all documents are gathered and reviewed, and well in advance of construction, RPR shall review the status of all required permits and approvals necessary for the successful execution of construction. The following is a partial list of items that should be determined:

1. All right of way has been cleared.
2. All utility agreements, easements and work plans are executed.
3. All DPW permits and approvals are obtained.
4. Indianapolis Department of Business & Neighborhood Services (BNS) right of way permit is obtained and activated.
5. Indianapolis Department of Parks and Recreation Flora Permit is obtained.
6. INDOT approval/permit is obtained if construction is adjacent to or is in INDOT right-of-way.
7. Indiana Department of Natural Resources (IDNR) Construction in a Floodway Permit is obtained (if required).
8. Stormwater Quality Control Plan (SWQCP) 205-R-636 (Erosion Control Plan) is approved by the Marion County Soil and Water Conservation District.
9. Notice of Intent Letter is approved by the Indiana Department of Environmental Management (IDEM) if Rule 5 (if required).
10. Section 404 Floodway Permit is obtained from the Army Corps of Engineers (if required).

11. Indiana Department of Environmental Management construction permit (if required).
12. Independent Assurance Testing Schedule.
13. Contractor's staging and storage site locations.
14. Dump site with DPW approval.
15. Right of Entry Agreement (if required).

#### **2-4. Submittals**

RPR shall make a list of all submittals and shop drawings required for the project. This list shall be all-inclusive and clearly state the approving authority for each submittal except products that are previously approved or only need a certification. Note: Design Engineer will be the approving authority for most submittals and shop drawings. The list should be in standard form. RPR shall receive, log, review, and forward all submittals/shop drawings to the proper approving authority for review and approval; then distribute accordingly after receipt from approving authority. RPR shall refer to this list during the course of construction to make certain proper submittals have been made and approved prior to the commencement of work.

#### **2-5. Field Visit**

After the Contract Documents have been reviewed, and well in advance of construction, RPR shall visit the project site and become familiar with existing site conditions. RPR shall perform an onsite field check of the entire project with the project plans, note locations of key elements of the project, and become familiar with possible interferences with existing residences, businesses, pedestrian traffic, or the motoring public prior to the contractor starting work.

Contractor shall provide the RPR a written inventory of damage observed during the survey. Still photographic or video records shall be required.

#### **2-6. Inspection Kick-Off Meeting**

After the documents and project status are reviewed and the field visit is complete, (but before construction starts), the Inspection Manager, RPR, and Inspectors shall meet with the Project Manager to discuss the project. The meeting should include a discussion of the following:

1. OWNER/Inspection Consultant Professional Services Agreement (PSA) Review
2. Levels of authority of Inspectors, RPR, and OWNER's Project Manager
3. Work Directive Changes and Change Order approval limits and procedures
4. Project Status Checklist
5. Alternate Bid items (if applicable)
6. Contractor's past performance
7. Procedure for dispute resolution
8. Procedure for dealing with complaints from the public
9. Forms to be used and timing of report submittals to OWNER's Project Manager
10. Project and Final Construction Records Filing System (See Chapter 4)
11. Organization and number of field notebooks
12. Special funding requirements
13. Format for Construction Inspection Consultant's applications for payment
14. Attendees, location, date, and notices for Pre-Construction Conference

15. Frequency (bi-weekly is strongly recommended) and expected attendees for progress meetings
16. Overview of Contract Documents
17. Submittal schedule and Submittal log
18. Maintenance of as-built drawings (paper and electronic)
19. Inspector/RPR responsibilities for Contractor Traffic Control (See Chapter 7)
20. Daily Report documentation
21. RPR/Inspectors shall have a mobile telephone with them at all times and the number shall be made available to Contractor's Superintendent/Foreman and Project Manager in order to respond quickly to questions concerning the project.
22. Post-construction activities (See Chapter 10)
23. Billing and invoicing procedures for the Contractor
24. Additional forms to be utilized
25. Contractor Certified Payrolls (WH-347) and contractor personnel interviews

## 2-7. Levels of Inspection

	<u>Description</u>	<u>Inspection</u>
<b>1</b>	<b>General RPR Duties</b>	
	Receive, review, comment if necessary, keep track of penalties	Expected
	Receive and file Material Certifications (Mix Designs must be approved by DPW Construction Administrator prior to placement of asphalt and concrete material)	Expected
	Inspection of materials to be installed, (contractors yard or on site prior to installation)	Expected
	Set up Independent Assurance Sampling (IAS)	Expected
	Check drainage problems	Expected
	Traffic Control & Temporary Pavement Markings	Expected
	Check for any utility and structure conflicts	Expected
	Load Tickets: Check each load, information, temperature	Expected
	Collect tickets at end of day, total, compare to plan	Expected
	Check completed work after placement	Expected
	Measure Payment Quantities	Expected
	Red Line As-Builts	Expected
<b>2</b>	<b>Preconstruction Meetings</b>	
	Conduct meeting/record minutes, distribute to attendees/file	Expected
<b>3</b>	<b>Paving</b>	
	Intermediate Course	Primary
	Surface Course	Primary
	Verify widths, lengths, joint locations and yield	Secondary
	Paving area cleanliness	Secondary
	Base course	Secondary
	Tack: Coverage, temperature, material during Intermediate & Surface courses	Secondary
	Thickness, segregation	Secondary
	Verify castings to be adjusted and contractor has contacted utilities	Secondary
	Inspect layout of widening area, mark base repair	Secondary
	Measure widening & base repair area	Secondary
	Check equipment on hand	Secondary
	Monitor dig-out	Secondary
	Check depth (slope)	Secondary
	Inspect sub-base compaction	Secondary
	Schedule quality control testing at the asphalt plant	Secondary
	Monitor Placement: Correct # of lifts, compaction	Secondary
	Material yield and thickness	Secondary
<b>5</b>	<b>Striping layout</b>	

	Final layout and placement of pavement markings	Secondary
<b>6</b>	<b>Concrete, (Sidewalk, Ramps and Curbs Installation )</b>	
	Check load batch time, material, segregation, slump	Primary
	Monitor contractor's concrete tests	Primary
	Check Finishing: contraction and expansion joints, curing compound at time of placement	Primary
	Check ADA ramps for slope spec compliance	Primary
	Schedule side by side quality control testing	Primary
	Check for incorrect concrete placements to be replaced at no cost to OWNER, i.e., incorrect slope, batter, etc.	Primary
	Check removal & layout. Before concrete pour, check forms for depths, widths, reinforcing steel, etc.	Primary
	Verify Clean Up: Form removal, backfilling, seeding, etc.	Secondary
	Check work the following day for any damage (vandalism)	Secondary
<b>7</b>	<b>Milling</b>	
	Paint limits	Primary
	Verify removal of castings in Milling areas	Secondary
	Monitor milling operation (check depth)	Secondary
<b>8</b>	<b>Structures (Pipe, Manhole/Inlet Reconstruction, New Structures)</b>	
	Check plans with field condition	Primary
	Verify pipe sizes, structure types, etc.	Primary
	Alignment, slope, joint sealing, connection to existing, etc.	Primary
	Backfilling and restoration	Primary
	Positive drainage	Primary
	Verify flow, drainage, and elevations	Primary
<b>9</b>	<b>Adjust/Remove &amp; Reset Castings, Furnish Casting</b>	
	Verify locations	Primary
	Verify removal is plated to prevent any accident	Primary
	Inspect condition of existing casting	Secondary
	Check casting exposure to allow for surface placement or possible traffic hazard	Secondary
<b>10</b>	<b>Project Documentation, Close-Out and Final Construction Record</b>	
	Inspector Daily Reports	Expected
	Weekly Reports (to be submitted to the PM by Monday 10:00 a.m. for the previous week)	Expected
	Progressive Record will be turned in with each contractor invoice, IC 642 turned in with FCR	Expected
	Progress Meeting Minutes	Expected
	Pay Estimates	Expected
	Work Directives	Expected
	Request for Proposals	Expected
	Change Orders with Change Order Log	Expected

	Certified Payroll Reports (record as needed per contractor) submitted to PM in .pdf format by the 10th of every month. Hard copies to be included in Final Construction Record.	Expected
	Indianapolis DPW Subcontractor/Supplier Payment Report (MBE/WBE/VBE Report) – to be submitted with every contractor invoice	Expected
	Project Photographs (Before/during/after)	Expected
	Actual capital outputs	Expected
	Disruption dates	Expected
	Red Line As-Builts	Expected
	Copies of O & M manuals (2 compact disc copies in .PDF format) will vary. See project manager for the number of hard copies needed.	Expected
	One hard copy and one digital copy of the Final Construction Record in .PDF format.	Expected
	The Final Construction Record will include all of the above plus:	
	Final Balancing Change Order	Expected
	Reports, Verification of all Installed Quantities, and Ticket Summary	Expected
	Material Certifications	Expected
<b>11</b>	<b>Culvert Extension</b>	
	Layout	Primary
	Verify Reinforcing Steel Layout	Primary
	Setting of New Structure	Primary
	Monitor backfilling	Primary
	Monitor Structure Removal	Secondary
	Check forms before concrete pour	Secondary
	Inspect Subgrade before Setting new Structure for compaction	Secondary
<b>12</b>	<b>Traffic Signals</b>	
	Coordinate through Project Manager and the Department of Public Works for:	
	Delivery and testing of the controller	Expected
	Final inspection and activation of signal	Primary
	Verify conduit and wire installation	Secondary
	Verify loop and sawing locations	Primary
	Detector house installation	Secondary

*\*Each line represents a single task in the overall project.*

1. *Expected tasks are required to be completed in full and are pertinent to project performance.*
2. *Primary tasks represent tasks that require inspection throughout the **ENTIRE** duration of the task.*
3. *Secondary tasks represent tasks that require inspection **INTERMITTENTLY** throughout the duration of the task.*

## Chapter 3 Forestry

### 3-1. Project Implementation

A pre-construction meeting should be planned with the Project Manager, RPR, Forestry staff, and the plant material contractor to discuss proper protection, pruning, and removal of existing plant material, as well as the proper handling and installation of any new plant material.

A Flora permit shall be obtained from the Department of Business and Neighborhood Services (formerly Code Enforcement) by the contractor prior to any plant pruning, removal, or installation. Due to short permit life spans (60 days), the contractor shall obtain one permit to cover removals and pruning. A second permit shall be necessary to authorize plant installation operations.

When necessary, due to the existence of trees near the construction limits of the project, proper tree protection fencing shall be installed prior to the mobilization of any heavy equipment or delivery of materials to the job site. Tree fencing should be the first activity on site!

DPW Forestry staff can assist in the incorporation of any incidental on-call forestry contracted work that may be needed in order to successfully implement the project. Examples include:

- Installation of tree protection fencing.
- Pruning branches for paving equipment clearance or equipment mobilization.
- Removal of trees within or near the project site that are a liability due to recent storms, construction damage, or late-stage project design changes.

To minimize issues during the planting activities, tree locations must be staked out with wood survey lathes in the field at least two (2) weeks prior to the planned installation day, and notification hang tags should be distributed to all properties adjacent to a proposed tree.

- Stakes should have species code and tree number written on them.
- The ground should be painted with a white “X”, with the tree number next to the “X”
- Any objections to tree planting from adjacent property owners shall be noted and those trees relocated to another location, if possible, within the project site, and the same process of notification applied to the new location of the relocated tree.
- DPW Forestry Staff shall be notified immediately of the placement of the wood stakes so their location can be confirmed and issues such as line of sight obstruction, overhead power line conflicts, and insufficient placement away from infrastructure and signage can be discovered and corrected before planting operations commence.

Forestry staff must be allowed 24 hours to inspect trees upon delivery to the job site and before planting begins. Forestry staff must be notified within 72 hours of completion of plant installation operations so work can be inspected, and either approved or rejected.

Watering operations must commence immediately and be sustained throughout the seasonal cycles dictated by the Contract Documents, and ending only at conclusion of the warranty period.

- The contractor shall document watering operations and send watering tickets to the RPR

and Project Manager as proof of their fulfillment of the watering requirements.

### 3-2. Project Warranty Period and Close-Out

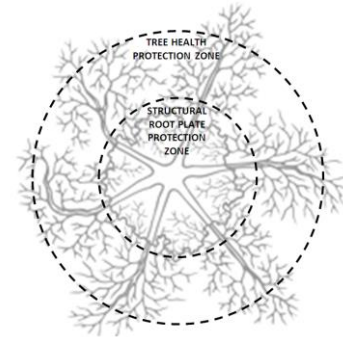
DPW Forestry staff will perform periodic supplemental inspections of the installed plant material as workload and schedule allows. Forestry staff must be notified one month prior to the end of the project warranty period so a final inspection may be completed.

Any necessary replacements must match the exact species and size of the original (unless an alternative is requested by Forestry staff) and shall occur at the next most appropriate planting season. Forestry staff must perform a final inspection of any replacement plant material to ensure compliance with project specifications.

The project team should provide as-built drawings to DPW Forestry at project close out so the new trees can be added to the street tree inventory database.

### 3-3. Root Protection Table

Significant risk of catastrophic failure exists if a tree's structural roots are destroyed or severely damaged. In addition, severing or damaging roots beyond the structural root plate can have significant consequences for the health of the tree. Minimum protection zone sizes shown below are based on measurement of tree stem diameter at 4.5 feet above the ground (DBH). For trees with multiple stems (trunks) at the measuring height, the DBH measurements are added together to create an overall sum DBH for that tree.



Tree Diameter (inches DBH)	Structural Root Plate Protection Zone (radius from trunk)	Tree Health Protection Zone (radius from trunk)	Tree Diameter (inches DBH)	Structural Root Plate Protection Zone (radius from trunk)	Tree Health Protection Zone (radius from trunk)
1	2'	2'	26	10'	22'
2	2'	2'	27	10'	23'
3	2'	3'	28	10'	23'
4	3'	3'	29	10'	24'
5	3'	4'	30	10'	25'
6	4'	5'	31	10'	26'
7	4'	6'	32	10'	27'
8	5'	7'	33	10'	28'
9	5'	8'	34	10'	28'
10	6'	8'	35	10'	29'
11	6'	9'	36	10'	30'
12	7'	10'	37	11'	31'
13	7'	11'	38	11'	32'
14	7'	12'	39	11'	33'
15	8'	13'	40	11'	33'
16	8'	13'	45	11'	38'
17	8'	14'	50	12'	42'
18	8'	15'	55	12'	46'
19	9'	16'	60	13'	50'
20	9'	17'	65	13'	54'
21	9'	18'	70	14'	58'
22	9'	18'	75	14'	63'
23	9'	19'	80	15'	67'
24	10'	20'	85	15'	71'
25	10'	21'	90	16'	75'



### 3-4. New Tree Locating Criteria

- Minimum 2.5' from all surface obstructions such as sidewalks, curbs, utility manholes.
- Minimum 10' from driveways, yard sewer inlets, fire hydrants.
- Minimum 5' from access walks to houses.
- Should center tree in the planting area, such as between the sidewalk and curb, within a median, etc.
- Locate new tree at a minimum of 75% of expected mature crown radius from other significant obstructions, such as buildings, power lines, and other mature trees.
  - e.g.: a certain oak with an expected mature crown spread of 60' = 30' radius.  
Radius (30') x 75% = 22.5'
  - Therefore, the oak tree must be located a minimum of 22.5' from other significant obstructions
- Minimum 5' from water and sewer lateral connection, underground powerlines, fiber optic lines.
- Minimum 5' from water and gas distribution mains, if possible.
- Minimum 20' from any street light in Right-of-Way.
- Select species and forms compatible with adequate minimum visual clearance zones specified in Chapter 701, Regulation 1 for intersections, access drives, traffic signals, and signage.
- Do not plant directly underneath power lines, instead locate trees at least 10' horizontally away from the power lines and use power-line compatible species.
- Do not plant trees on slopes greater than 3:1.
- Small stature trees must not be located within the clear sight distance zone.
- The clear zone must be free of visual obstructions such as leaf material between 30" and 8' above grade.
- Woody stems and branches are allowed in the clear zone, as well as leaf material on appropriately-spaced, newly-established trees.
- Trees with excessive litter (large fruits and nuts) shall not be located where pavement would exist under the expected mature crown of the trees.
- Do not plant trees where they would obstruct the flow line of stormwater conveyances.

### 3-5. Tree Planting Operations Scheduling

Ideal planting season is Spring for the most species.

- Spring plantings require diligent watering right away.

Many species can tolerate a Fall planting, but not all.

Table 2. Some slow-to-root trees that should only be planted in spring.

Scientific Name	Common Name
<i>Acer rubrum</i>	Red Maple
<i>Betula spp.</i>	Birches
<i>Chamaecyparis nootkatensis</i>	Nootka False Cypress
<i>Cornus florida</i>	Flowering Dogwood
<i>Crataegus spp.</i>	Hawthorns
<i>Koelreuteria paniculata</i>	Goldenraintree
<i>Liriodendron tulipifera</i>	Tulip Tree, Tulip-poplar
<i>Magnolia spp.</i>	Magnolias
<i>Nyssa sylvatica</i>	Black Gum
<i>Populus spp.</i>	Poplars
<i>Prunus spp.</i>	Stone fruit (Peach, Cherry, etc.)
<i>Pyrus calleryana</i>	Callery Pear, Including 'Bradford'
<i>Quercus alba</i>	White Oak
<i>Quercus coccinea</i>	Scarlet Oak
<i>Quercus macrocarpa</i>	Bur Oak
<i>Quercus phellos</i>	Willow Oak
<i>Quercus robur</i>	English Oak
<i>Quercus rubra</i>	Red Oak
<i>Salix spp.</i>	Willows
<i>Tilia tomentosa</i>	Silver Linden
<i>Zelkova serrata</i>	Japanese Zelkova

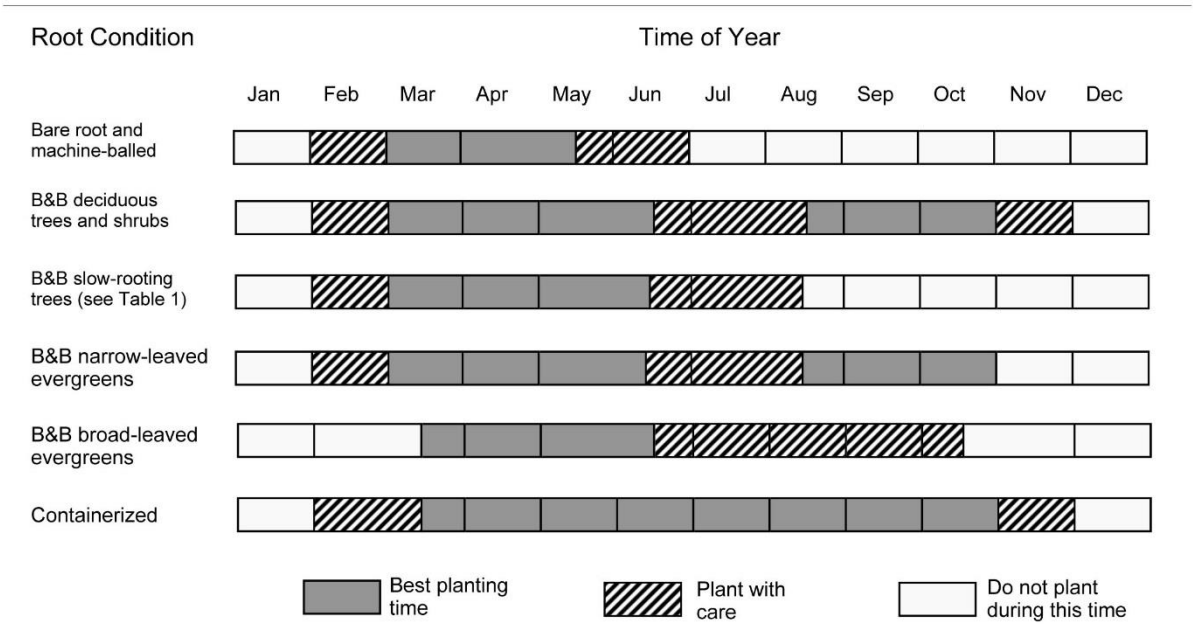


Figure 1. Preferred and acceptable planting times for nursery stock in central Indiana.

## **Chapter 4**

### **Pre-Construction Meeting**

Prior to the start of any work, a mandatory Pre-Construction Conference will be conducted. The Inspection Consultant RPR and Project Manager will conduct the conference.

At a minimum, attendees of this conference should include: Contractor, Project Manager, Office of Minority and Women Business Development (OMWBD) representative, other City Employees involved with the project, Design Engineer, affected Utilities, Inspection Consultant RPR and PM, and DPW Signal Operations (if traffic signals are part of the project). A typical agenda for this conference will include, but not be limited to, the following items:

1. Introductions
2. Status of Contract (Bonds, Insurance, Award Letter, PO, Notice to Proceed)
3. Completion Dates (Substantial and Final Completion) with definitions of each
4. Liquidated Damages
5. Contractor emergency contacts, phone numbers, and email addresses
6. Schedule of Construction Operations
7. Schedule of Values
8. Right of Way (Clear?)
9. Utility Information / Coordination
10. MBE/WBE/VBE/DOBE participation and documentation
11. Subcontractors/Suppliers list (Post Bid Submittal)
12. Submittal of Shop Drawings & other Materials
13. Contractor's Supervisory Personnel
14. OSHA and other Safety Regulations
15. Public Relations / Coordination with Residents – Property Owners
16. Safety #1 (hard hats, safety shoes & vests / excavation, trench safety, dust control)
17. Contractor responsibilities prior to work – notification to property owners, existing condition photos and/or video.
18. Material and testing requirements
19. Wage Rate Interview Procedures
20. Work Directive Change (WDC) and Change Order procedures.
21. Discussion of required permits and where displayed at job site
22. Prior written notification of non-regular work hours (weekends, holidays, overtime, etc.)
23. Progress Meetings
24. Transition to Operations/CEG (if applicable)

#### TEMPLATES:

Preconstruction Meeting Agenda  
Preconstruction Meeting Sign-in Sheet  
Permit Summary Sheet  
Preconstruction Meeting Minutes

A link to the Sample Forms & Templates can be found at:

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/PoliciesandProceduresManualforInspectionofLocallyFundedConstructionProjects.aspx>

Prior to the Pre-Construction Meeting, OWNER shall send notices to OWNER's representatives, Contractor, Inspection Consultant, Design Engineer, OMWBD, Independent Assurance Sampling (IAS) Representative, and all Utilities. The notice to the Contractor shall list all items the Contractor is required to bring to the Conference, such as their construction schedule, schedule of values, emergency/after hour contact information. The RPR shall prepare a project specific agenda to distribute to all attendees at the Pre-Construction Meeting.

After the Pre-Construction Meeting, several procedural items should be followed.

1. A copy of the sign-in sheet should be distributed to all attendees.
2. Minutes of the conference shall be written by the RPR and distributed to all invitees within one week of the conference.
3. Contact should be made with all the invitees that failed to attend the conference to see if they have any pertinent information.

## **Chapter 5**

### **Project Filing System**

A project filing system shall be used on all OWNER'S construction projects. During the project kick-off meeting, the Project Manager and RPR will discuss and determine the specific number of files to be used and the specific method to be employed for the project. See the following pages for the filing system directory.

All files shall be kept with the RPR or at their office. RPR will be responsible for keeping all project files current, in an orderly condition, and available for inspection at any time by the Project Manager.

Current as-built drawings must be kept and maintained by the RPR. A set of current as-built drawings shall be available for the Project Manager at any time.

# **Project & Final Construction Records Filing System**

## **1) Correspondence**

- 1.1) Oversight Agencies and Permitting
  - A) *DPW*
  - B) *IDEM*
  - C) *US ACE*
  - D) *INDOT*
  - E) *BNS*
  - ZZZ) Add folders for specific oversight agency*
- 1.2) Utility Coordination
  - ZZZ) Add folders for specific utility*
- 1.3) Public Coordination
  - A) *Business*
  - B) *Residents*
  - C) *Public Information Office (PIO)*
- 1.4) Construction Engineering
  - A) *Design Engineer*
  - B) *Construction Inspection Consultant*
  - C) *Sub-consultants*
- 1.5) Contractors
  - A) *Prime*
  - ZZZ) Add folder(s) for specific subcontractor*

## **2) Project Initiation**

- 2.1) Project Information
  - A) *Contract Information Book (CIB)*
  - B) *Plans*
  - C) *Addenda*
  - D) *Design Computations*
  - E) *Rights of Entry*
  - F) *Soils Report*
  - G) *Pavement Coring Reports*
  - H) *Sewer Assessment*
  - I) *Easement and Right of Way Information*
- 2.2) Pre-Bid
  - A) *Meeting Materials - From Design*
- 2.3) Pre-Construction
  - A) *Meeting Materials - From Inspection*
  - B) *Meeting Materials - From Contractor*

## **3) Construction**

- 3.1) Contractor's Information
  - A) *Insurance Certificate, Bid, Payment & Warranty Bond*
  - B) *Bid Tab*

- C) *Post Bid Documents*
- D) *Notice to Proceed for Construction & Inspection*
- E) *Initial Construction Schedule*
- 3.2) Submittals
  - A) *Request For Proposal (RFP)*
  - B) *Shop Drawings*
  - C) *Testing Reports*
  - D) *Letters of Transmittal to DPW*
  - E) *O&M Submittal*

3.3) Field Orders

3.4) Work Directive Changes (WDC)

- A) *Working Documents*
- B) *Executed Documents*

3.5) Change Orders (CO)

- A) *Working Documents*
- B) *Executed - (Include Final Balancing CO)*

3.6) Claims

**4) Inspection**

4.1) Daily Reports

4.2) Progressive Record & Capital Outputs

- A) *Progressive Records*
- B) *Capital Outputs*

4.3) Weekly Progress Report including Photos and Daily Work Reports

*ZZZ) Insert Folders names for Weekly Period (ex. 2018-07-01 to 2018-07-08)*

4.4) Preconstruction Photos or Video

4.5) Post Construction Photos or Video

4.6) Progress Meetings

- A) *Agenda*
- B) *Minutes*
- C) *Schedule*

4.7) Materials Management

- A) *Certifications*
- B) *Delivery Tickets*

4.8) As-Built Drawings

**5) Financial**

5.1) Pay Applications

5.2) IC 642

5.3) Certified Payrolls

**6) Operations and Maintenance**

6.1) Data Submittals

6.2) Final Plan of Operation

6.3) Final O&M Manuals

6.4) Training

- A) *Sign-in Sheets*

*B) Handout Materials*

**7) Construction Close Out**

7.1) Pre-Final Walkthrough

*A) Sign-in*

*B) Punch List*

7.2) Final Inspection

*A) Sign-in*

*B) Punch List*

7.3) Final Certificates

*A) Substantial Completion*

*B) Property Releases with corresponding Right-of-Entry Agreements*

*C) Consent of Surety to Final Payment with Power of Attorney*

*D) Warranty Bond with Power of Attorney*

*E) Prime Contractor's Waiver of Lien*

*F) Subcontractors & Suppliers Waiver of Lien(s)*

*G) Final Subcontractor/Supplier Payment Report*

7.4) Contractor Evaluation

A link to the folder template can be found at:

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

*\*ZZZ Folders are the only folders to be altered or renamed. No extra folders shall be created within this list.*



## Chapter 6 Field Reports, Records and Daily Work

### 6-1. Field Observation

The RPR shall inform Contractor as soon as possible of any observed deficiency in the Contractor's work. The RPR nor any Inspectors shall not at any time, recommend, suggest, or direct the means or methods of construction of any portion of the Contractor's work.

Inspection will be performed for all activities on a full or part-time basis as outlined in the Level of Inspection in Chapter 2-7. OWNER shall make the determination if construction inspection will be full-time or part-time. Consult with your Project Manager if there are any questions concerning staffing and inspection requirements.

The RPR and Inspectors shall be familiar with all current safety regulations, and all construction inspection activities shall be conducted in accordance with such pertinent regulations. Neither the RPR nor Inspector(s) shall be responsible for the safety procedures of the Contractor; however, they are responsible for reporting instances of unsafe practices to the Project Manager and the Contractor. Such observations and to whom these observations are reported to shall be indicated in the Inspector's Daily Work Report.

### 6-2. Progress Meetings

The RPR shall conduct regular project Progress Meetings on site or at the OWNER's office. The meetings shall be planned ahead for a regular day and interval not exceeding one per month and scheduled in Microsoft Outlook. Attendees shall include the RPR, Project Manager, Construction Superintendent, and any Superintendents for all major construction subcontractors, any appropriate utility company representatives, and the Design Engineer if needed.

Each meeting should focus on the status of the major work elements of the project with respect to the construction schedule. The Construction Superintendent should submit at the meeting an updated progress schedule for the completion of construction of the project. The RPR shall keep minutes of the progress meetings and distribute the minutes to all attendees.

### 6-3. Inspectors Daily Report and other Project Forms

Each Inspector shall complete an Inspectors Daily Work Report (DWR) for each day's work using the current standard set forth by OWNER or an approved equal by the Project Manager.

At the end of each workday, all reports should be reviewed for accuracy, signed by the Inspector, and submitted to the RPR for incorporation into the Project Daily Work Report.

Each Inspector shall record on the Inspectors Daily Work Report the location and quantities of each material installed or delivered to the project site each day. This information will be used by the RPR to update the Daily Progressive Record and ultimately to verify the Contractor's application for payment. **The accuracy of this information is extremely important and shall be reviewed and agreed upon with the contractor on a daily basis.**

The Inspectors Daily Work Report shall record the following but not be limited to:

- Contractor's personnel and all equipment on site and whether each piece of equipment is being utilized.
- The day's weather.
- The controlling construction operation.
- Any occasion the Contractor failed to work, whether it be on their own account or due to an outside influence such as a utility. (If it's not the Contractor's fault *they* cannot work, place 0/8 in the "fraction of day workable" section).
- Any sign(s) down or other deficiency(s) in traffic control devices, and when repaired.
- Detail of work performed that day and point out any problems encountered.
- On projects having concrete curb, concrete pavement, concrete driveways, concrete sidewalk, or concrete ramps, Inspectors shall measure the depth of the proposed pour prior to placement of concrete and shall record those depth measurements on the Daily Report giving the station number and/or home address of each depth measurement. Depth measurements shall be taken at a predetermined interval as agreed upon between RPR and Project Manager. Spacing between depth measurements shall not be more than 50 feet.
- Inspectors shall take date/time stamped digital photographs of key elements of work and all problems when they arise. Such photographs shall be electronically filed with a described location, date, name of Inspector, and the corresponding daily report number.
- Asphalt temperatures shall be taken and recorded on the Daily Work Report, as well as the delivery ticket of the load which the temperature was taken.
- Discussions with Contractor personnel and topic discussed should be documented.
- Phone conversations of significance shall be documented.
- Visitors to the site with a summary of topics discussed shall be documented.
- Any accidents that occurred within the project limit shall be documented.

If filling out the last daily report for the job, make a note of it. Typically, the last report will be the day all construction signs come down.

**THERE IS NO SUCH THING AS TOO MUCH INFORMATION ON YOUR DAILY!** It could be of extreme importance when trying to determine whether or not time extensions are justified, clarifying the cause of an accident or needing to be utilized for legal purposes.

Dailies are to be submitted Monday thru Friday whether or not the Contractor works (once work begins) and on weekends when work takes place, until the day of the last report. An exception to this is when a contract is suspended for a long length of time. In this situation, note on the last active Daily work is suspended. Dailies will resume the day work starts again.

All completed Inspectors Daily Work Report forms shall be maintained in the project files by the RPR and available for review by the Project Manager upon request.

Further guidance on data to be included in the Daily Work Report is found in the current edition of the INDOT General Instructions to Field Employees. (See Chapter 1)

#### **6-4. Daily Work Report**

The Daily Work Report is an extremely important documentation in the event a time extension or non-performance of the contractor is to be determined. The RPR shall record on the Project Daily Work Report at a minimum, the following:

Controlling Operation(s)

Fraction of day workable on Controlling Operation(s) (fraction must never be  $\frac{1}{2}$ )

Non-work day and work day data

Information relating to delays and/or Contractor's progress.

All information gathered from the Inspectors Daily Work Report is to be consolidated into the Project Daily Work Report. This report will track project progress and conditions for that particular day should there be more than one project operation being performed on the same day at multiple locations with multiple inspectors.

#### **6-5. Daily Progressive Record**

The Daily Progressive Record is a daily accounting of the quantities and locations of materials placed relative to each pay item of the construction contract. Each day, Inspectors submit to the RPR their daily reports showing the location and quantities of materials placed. From this information, the RPR updates the Progressive Record.

The Daily Progressive Record contains a separate listing of each pay item of the Construction Contract.

The Progressive Record will be maintained on a daily basis and inspected by the Project Manager at progress meetings.

#### **6-6. Weekly Construction Reports**

The RPR shall submit to the Project Manager a report outlining progress that has occurred on the project over the past week and a projection of work for the upcoming week. The reporting interval shall be weekly and discussed at the kick-off meeting.

Weekly reports shall cover a one-week period beginning on Sunday and ending on Saturday. The Weekly Construction Report shall identify the work in progress, controlling operation(s), projection of work for the upcoming week and the fraction of each workday that is workable.

Weekly reports shall be submitted to the Project Manager no later than the morning of the Tuesday following the weekly reporting period.

Weekly reports shall also include photos of the project progress, Daily Work Reports for the week, testing reports received and any other documentation crucial to the project.

### **6-7. Field Notebooks**

The RPR may maintain a series of Field Notebooks to record all information that cannot be shown on the Daily Work Reports. Each Field Notebook should be marked with the project name and number and should be sequentially numbered. The type of notebook and information to be recorded in the notebooks should be discussed at the kick-off meeting with the Project Manager.

Field notebooks are an important part of the Inspector's information recording system for the project. The following are typical recorded applications.

1. Structures as they are placed
2. Field survey which may be necessary
3. As-built information
4. Depth checks for subbase, forms, asphalt, etc.
5. Signage checks
6. Photo log
7. Field measurements, sketches for quantity computations

*\*All field notebooks shall be retained as part of the permanent final construction records for the project.*

### **6-8. Certified Payrolls from the Contractor**

RPRs are to collect certified payrolls from the contractor and all subcontractors during the project. The RPR will turn these in as they become available to the Project Manager via .pdf file (email preferred), and file the original payrolls with the Final Construction Record at the conclusion of the project. RPRs can withhold payment to the Contractor if certified payrolls are not delivered by the Contractor with each pay application.

## Chapter 7 Testing

### 7-1. Quality Control Sampling and Testing

Material testing, sampling or material certification for all delivered and accepted materials is required on all Department of Public Works (DPW) projects. Refer to each projects Technical Specifications for additional information. The City of Indianapolis, DPW, Quality Control Sampling and Testing Frequency Manual, Current Edition, is available at the following link <http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx> and shall be used to determine testing and certification frequency. The Contractor is responsible for **ALL QUALITY CONTROL SAMPLING & TESTING** (i.e., daily job control testing and certification) as set out in the above frequency manual. The Project Manager will provide the name and contact person of required OWNER's **INDEPENDENT ASSURANCE SAMPLING (IAS)** (i.e., random checks of the Contractor's daily job control testing) as set out in the above frequency manual. The RPR will be responsible to verify the following:

Contractor and Independent Assurance Sampling are performed in accordance with the frequency manual;

Contractor to submit all required certifications and test results. Certifications are to be verified as being in compliance and are placed in the project file folder as shown in Chapter 4 of this manual.

In addition to the above activities, the RPR shall perform the following contractual requirements:

- a. Verify the required **QUALITY CONTROL SAMPLING AND TESTING** has been accomplished and the Contractor has provided materials certification for all delivered and accepted materials used in the project's construction.
- b. Review the Contractor's test/certification results and the OWNER's IAS tests for accuracy and retain in the project file.
- c. Questionable testing methods or results from the Contractor may initiate an increase in the volume of Independent Assurance Sampling tests by others.

## **7-2. Independent Assurance Sampling (IAS)**

**IAS** testing is required on most DPW projects based on the quantities and frequency established in the City of Indianapolis, Department of Public Works, Quality Control Sampling & Testing Frequency Manual (See Chapter 1 or 7-1 for link). At the Pre-Construction Conference, the RPR will provide the OWNER and the OWNER's Independent Assurance consultant a breakdown of required IAS tests for that project based on the quantities in the Itemized Proposal.

**If the quantity(s) or the project are less than the required Independent Assurance Sampling (IAS) testing in the manual, a minimum of one test is required.**

The RPR shall maintain a log showing required tests and dates these tests were performed. Upon completion of an IAS test, the lab technician will sign their name and the date on the appropriate space on the log. This log will become part of the Final Construction Record. The RPR is responsible at all times for knowing when IAS testing is required. When an IAS test is due, the RPR will notify the Owner's Independent Lab (48 Hours in advance, MINIMUM) and be responsible for all coordination concerning these tests. Test results will be sent to the RPR by the lab. The RPR will not make direct requests to the OWNER's Independent Lab for any testing other than IAS testing. Testing other than IAS testing must be initiated by the Project Manager.

## **Chapter 8 Traffic Control**

### **8-1. Checking of Construction Signs and Barricades**

All signs and barricades on the project should be visually checked by the RPR weekly and within 4 hrs. after a major storm event. Any deficiencies in signage or barricades should IMMEDIATELY be brought to the attention of the Contractor and followed up to ensure the situation has been corrected.

### **8-2. Notification of Road or Bridge Closure or Restriction**

The Contractor shall obtain a right of way permit from Business & Neighborhood Services (BNS formerly DCE) for any road or bridge closure and have proper signage installed two weeks prior to the closure and notification sent to the RPR, Project Manager and the Public Information Officer (PIO) in writing.

### **8-3. Indiana Manual on Uniform Traffic Control Devices (IMUTCD)**

The Indiana Manual on Uniform Traffic Control Devices for Streets and Highways (IMUTCD) defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel. The IMUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F. The IMUTCD is a compilation of national standards for all traffic control devices, including road markings, highway signs, and traffic signals. It is updated periodically to accommodate the nation's changing transportation needs and address new safety technologies, traffic control tools, and traffic management techniques.

The IMUTCD can be accessed at the following link:

<http://www.in.gov/dot/div/contracts/design/mutcd/mutcd.html>

## **Chapter 9**

### **Contractor Application for Payment**

The RPR and Contractor will agree on a daily basis to all pay item quantities prior to the Contractor submitting an application for payment. This process is further described in the General Conditions Sec. 13.6.

The Contractor's application for payment shall consist of one original supported with a Contractor's Pay Estimate Form. Also included with each pay application shall be a partial lien waiver and the Indianapolis Subcontractor/Subconsultant Payment Report. The signature block and project information portion needs to appear only on the last sheet.

The Contractor submits to the RPR their monthly quantities, RPR verifies the quantities for the Contractor's application for payment, Subcontractor/Sub-Consultant Payment Report, certified payrolls and Partial Lien Waiver, signs, and dates the Contractor Pay Application Form and submits one original to the Project Manager for approval and processing.

The quantities shown on the Contractor's Pay Application must match the Progressive Record.

The amount of retainage withheld per the General Conditions Sec. 13.5 is 10% of each progress payment until the work is 50% billed. After 50% of the original contract total amount is billed and retainage withheld, no additional retainage is required to be withheld.

For a complete set of requirements, refer to Article 13 of the General Conditions found at:

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>



## **Chapter 10**

### **Change Order Procedures**

#### **10-1. Introduction**

The statutory and regulatory constraints that govern City of Indianapolis construction, as well as the uncertainties of the construction process, make it necessary that City contracts remain flexible to accommodate project needs.

The RPR and Project Manager are responsible for implementation of a fair and effective change order and claims mitigation process. The RPR must be completely familiar with this process as stated herein and in the Contract Documents. The RPR must react promptly to requests and potential claims made by the Contractor to minimize unnecessary cost and time. The RPR must promptly notify the Contractor of OWNER driven changes or claims to minimize unnecessary cost and time. The RPR shall keep the Project Manager fully aware of the status of all issues regarding changes in cost and/or time and copy the Project Manager on all pertinent paperwork.

During the course of the project the Contractor may request information from the RPR. A Request for Information (RFI) or a Request for Clarification (RFC) is a written request issued by Contractor to the RPR requesting information or an interpretation relative to the project. The RPR should promptly respond in writing to such requests. RPR shall keep a log of all RFI's on the project.

A Field Order (FO) is a written instruction on an OWNER approved form issued by the RPR or the Project Manager to the Contractor which orders minor changes in the work but does not involve a change in project cost or time. A Field Order is not a part of a Change Order as it does not involve a change in project cost and/or time.

A link to the forms can be found at:

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

#### **10-2. Changes Involving Cost and/or Time**

Any modification to a construction contract that involves an increase or decrease in cost and/or time must be presented to the Board of Public Works for approval as a Change Order. Change Order procedures shall be discussed at the Pre-Construction Meeting. Policies governing Change Orders are found in the City of Indianapolis Standard General Conditions.

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

The following procedures are to be used to process changes in work that result in increases or decreases in cost and/or time.

#### **Request for Proposal (RFP)**

An RFP is a written request by the OWNER on an OWNER approved form requesting the Contractor to furnish a proposal for a specified change in the work. The RPR completes the RFP

and sends to the Project Manager to review. Once approved by the Project Manager, the RPR sends the RFP to the Contractor for their review and response within 7 calendar days.

### **Work Directive Change (WDC)**

A WDC is a written directive to the Contractor to perform additional work or delete work on an established OWNER contract. The WDC will be issued by the RPR (within 48 hours of all required signatures being obtained). Contrasted with a Change Order, a WDC does not require the signature of the Contractor to be effective. The WDC ensures the Contractor that they are authorized to proceed with the work and will be compensated by extension of contract time and/or cost within the general scope once a Contract Change Order covering that WDC is approved by the Board of Public Works. A Change Order will immediately follow the WDC on the next possible Board of Public Works meeting for approval and execution.

A WDC cannot be used if the increased cost of the change is over \$150,000 or is a change in scope to the original project limits (i.e. cannot add new elements or add length to the original element by WDC).

### **Change Order (CO)**

A CO is a modification to the Contract Documents on an OWNER approved form which is written and signed by the RPR, Contractor and the Director of Public Works after being authorized to do so by the Board of Public Works. The approved Change Order results in an executed Change Order which will be sent by the Project Manager to the RPR and Contractor.

A CO can encompass more than one WDC.

All COs must be described as foreseen or unforeseen. The definition of foreseen and unforeseen shall be determined by the Project Manager on a case by case basis. Generally, foreseen is a change that could have been determined by the Design Engineer (usually above ground) of the project. Unforeseen is a change that could not have been determined by the Design Engineer (usually underground) of the project. Foreseen changes, by Indiana Statute, cannot exceed 20% of the total project contract cost.

The RPR shall maintain a current CO Summary Sheet of all COs and WDCs showing the net effect on project cost and time and if the change is foreseen or unforeseen.

A link to the forms and the current DPW Board calendar can be found at

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

## **Chapter 11**

### **Project Close-Out**

The following procedures shall be used for Close-Out of projects or Close-Out of a portion of a project, as approved by the Project Manager (see the General Conditions Section 13, for specific details on Substantial Completion and inspections). Final project closeout shall be discussed with all parties at the Preconstruction Conference.

#### **11-1. Substantial Completion**

Substantial Completion is achieved when all pay items in the Construction Contract are complete. The Contractor shall contact the RPR and request Substantial Completion. The RPR shall determine if the standards for Substantial Completion have been met, and if so, shall complete the Certificate of Substantial Completion. After Substantial Completion has been achieved, the RPR shall notify the Project Manager and Contractor to schedule a Pre-Final walk through inspection. Prior to the Pre-Final Inspection, the RPR shall complete a comprehensive inspection of the entire project and compile a pre-final punch list. At the Pre-Final Inspection, the Certificate of Substantial Completion form will be signed by all parties and an electronic copy of the Certificate of Substantial Completion with attached Pre-Final Inspection Punch List items shall be sent to all attendees.

#### **11-2. Punch List**

The Contractor shall complete or make all necessary corrections of all Pre-Final Punch List items before requesting a Final Inspection. An inspection of the work with the OWNER shall be scheduled as soon as schedules permit. The RPR shall prepare minutes of this inspection and notify the Contractor in writing of all particulars in which this inspection reveals the work that remains incomplete or defective (Final Punch List). All Final Punch List items shall be completed within (5) days of notification to the OWNER's satisfaction, prior to the release of retainage but not later than the Final Completion date as amended by Change Orders.

#### **11-3. Final Quantities**

The project's final quantities should be discussed at the Pre-Final Inspection. It is desirable for the RPR to have a draft of the final IC 642 for the Contractor's review to begin the process of final closeout. When final quantities have been agreed upon, the RPR will prepare the Final Change Order for the project. The Final Change Order must include the final IC 642 quantity summary and the executed Certificate of Substantial Completion.

#### **11-4. Project As-Built Drawings**

The project red line As-Built (in .pdf format), O&M Manuals, Field Notebooks and any other deliverables required by the Contract Documents shall all become part of the Final Construction Record files assembled by the RPR.

See Attachment “A” of the Inspection Consultant Professional Services Agreement for more details on what is required for As-Builts. The designer’s digital data submission requirements can be found at the following link below:

<http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/home.aspx>

The RPR prepares the red line markup “as-built” drawings. The red line mark ups shall be for any modification to the plans as bid. The RPR shall provide a final set of “as-built” markups titled “AS BUILTS” on the title sheet, signed and dated by the RPR and passed along to the Design Engineer for creation on an electronic “as-built” per the digital data submission as outlined in Attachment “A” of the Design Professional Services Agreement. Examples of modifications to be marked up may include, but are not limited to the following:

1. Geometric revisions (additions or deletions) to the as-bid plans.
2. Type of pipe installed from the specified Class.
3. Changes in the size of pipe.
4. Changes in the structure or casting type.
5. Revisions to planned invert elevations.
6. Existing infrastructure discovered during construction (i.e. field tile, storm sewers, manholes, etc.) that remain in place as well as any connections to the new construction.
7. Revisions to planned drainage swales or ditches.
8. Changes in the pavement thickness, composition, type or limits.
9. Revisions to permanent right-of-way or easements or the location of any encroachments to the right-of-way or easements that will remain after the project.
10. Traffic signal conduit/wiring revisions.
11. Added sidewalks and ADA ramps.
12. Shoulder widening, added turn lanes, pavement widening or narrowing.
13. Changes to dimensions or thicknesses of walks, drives and/or ADA Ramps.

### **11-5. Contractors Retainage**

Upon issuance and OWNER'S execution of a Certificate of Substantial Completion, OWNER may reduce the retained amount to not less than two hundred percent (200%) of the cost of Work to be completed, corrected or accepted. See Standard General Conditions Section 13.5 for more details.

### **11-6. Contractors Final Completion and Payment**

Final Completion is achieved when all project documentation is received by the RPR from the Contractor. The Contractor shall have (45) calendar days from Substantial Completion (or as outlined in the contract) to achieve Final Completion or Liquidated Damages could be assessed. All final Waivers of Liens from the Contractor and all Subcontractors and Suppliers must be received. **No conditional Waivers of Liens will be accepted.** Below is a list of final documents required by the Contractor:

1. Certificate of Substantial Completion
2. Request for Release of Retainage Letter with separate invoice and subcontractor payment report
3. Final Pay Application with separate invoice and subcontractor payment report
4. Property Release(s)
5. Prime Contractors Final Waiver of Lien
6. List of all Subcontractors & Major Suppliers (\$10k+)
7. Subcontractors & Major Suppliers Final Waiver of Lien(s)
8. Consent of Surety to Final Payment with Power of Attorney
9. Warranty Bond with Power of Attorney
10. IC 642 Comparison of Original and Final Quantities

Contractor shall submit a pay application for all final quantities including all additional monies approved on the final Change Order.

Contractor's shall request a separate invoice for final release of retainage.

All payment applications must include a partial/final waiver of lien and subcontractor payment report.

### **11-7. Final Construction Records**

The RPR shall assemble the following documents in hard copy form and electronically with a CD/DVD disc or flash drive and submitted to the Project Manager a maximum of (45) calendar days after final completion. The following shall become part of the Final Construction Record:

1. Final Construction Records Checklist
2. Certificate of Substantial Completion
3. Final Change Order Summary Sheet
4. Final Change Order
5. Form IC 642 (quantities agreed upon by Contractor and RPR)

6. Contractors Request for Retainage Letter
7. Contractors Final Application for Payment
8. Contractors Final Subcontractor Payment Report
9. Contractors Warranty Bond with Power of Attorney
10. Contractors Consent of Surety to Final Payment with Power of Attorney
11. Property Release(s) (if applicable)
12. Prime Contractors Waiver of Lien
13. All Subcontractors & Major Suppliers Waiver of Lien(s)
14. List of all Subcontractors, Major Suppliers & Manufactures
15. Project Personnel Sheet
16. Contract Information Book, Plans, Addenda
17. Contractors Bid Documents
18. Contractors Post-Bid Submittals
19. Bid Tabulation
20. Contractors Notice to Proceed
21. Contractors Submittals and Approvals
22. Progress Meeting Minutes
23. Daily Work Reports
24. Weekly Construction Reports
25. Pay Estimates
26. Certified Payrolls
27. Testing Reports
28. Construction Schedules
29. Correspondence (emails)
30. Executed Change Orders with all backup documentation
31. Work Directive Change(s)
32. Request(s) for Proposal
33. Explanation of Overruns and Underruns
34. Summation of Items Referenced to Form IC 642
35. Contractor Evaluation
36. Material Tickets (concrete, B-Borrow, pipe, structure, aggregate, etc.). Each placed in separate manila envelope marked with the specific pay item no. and description material was used for.
37. "Red Line" As-Built in paper form and in .pdf format. See Attachment "A" of Inspection Contract.
38. In addition to the above hard copies, a copy of all final construction records, "as-builts", and Contract Documents scanned and submitted in PDF format.
39. Capital outputs (actual "as built" capital outputs). A list in excel format can be obtained by the Project Manager

*\*All files digitally added in proper location of the Project and Final Construction Records File System as outlined in Chapter 4.*