



Massachusetts Bay Transportation Authority

Contract No. E22PS02

DOCUMENT CONTROL PLAN (DCP)

For

PRELIMINARY ENGINEERING AND

DESIGN/BUILD PROCUREMENT



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MBTA Green Line Extension Document Control Plan

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Document Control Plan

1.0 Introduction

The Program Manager/ Construction Manager (PM/CM) shall provide and operate a document control system to support the Green Line Extension (GLX) program that is in compliance with the FTA guidelines for Document Control, attached to this Plan as Exhibit A-1. In addition, the MBTA has provided direction within the Scope of Services that a goal of the Document Control Program should be to reduce hard copy files whenever possible and that records will be electronically stored and maintained. The document control system shall:

- Provide for a complete set of electronic project files of all project documents via Projectwise and iBuild.
- Establish lines of communication among all GLX participants.
- Provide for processing all project documents for review and comment.
- Provide a process to identify project documents by the specific project number, MBTA Contract E22PS02.
- Provide for a means of extraction, conveyance and tracking of documents in electronic form within the iBuild database.
- Maintain proper documentation to support the baseline management activities in the Configuration Management Plan and rigorously reflect the project baseline.
- Establish a conveyance system for turning over a complete set of final GLX electronic documents to the MBTA. When the PM/CM obtains hard copy project documents, especially those bearing original signatures or of a legal, sensitive or contractual nature, they will be scanned to create an electronic record and then transferred to MBTA.
- Be reviewed at least annually and updated as needed, as a result of continuous process improvement efforts by the project management team.

1.1 Scope

The scope of the Document Control Plan is to:

- Standardize procedures for document control;
- Assure that documents are safely secured, maintained and readily available for use by persons with access approval;
- Index documents received or collected for systematic filing;
- Preserve records of quality including: design documents, construction documents, contracts and agreements, basis for design, construction, procurement and Owner operations and maintenance records;
- Support the project processes of Change Control, Configuration Management and Quality Assurance; and,

- Assure that all Project participants are consistently informed of the current policies, procedures and basis for design, construction and procurement, including facility and systems configurations and interface.

1.2 Definitions

- **Baseline Documents** are drawings, specifications, standards, design criteria, and program plans including budget and schedule which have been formally accepted by MBTA and define the project baseline.
- **Change Control** – In conjunction with Configuration Management, the rigorous method and procedure for assessing, approving and documenting changes to Engineering Baseline information.
- **Controlled Technical and Programmatic Document List (CTPDL)** – The listing of all controlled technical and programmatic documents on the Project.
- **Design Document Manager** – The repository for approved Project drawings. Drawing Control responsibilities are addressed in Section 3.0 of this Plan.
- **Document Control** – The office responsible for control, storage, retrieval, distribution and revision of all documents acquired, originated, or received.
- **iBuild** – A web-based project management, tracking and retrieval database. This database is the primary application to control and share documents on the GLX project.
- **Programmatic Documentation** – Those documents developed to plan, manage, control and execute Project activities.
- **Projectwise** – A software application licensed by Bentley System, Inc. This application will be used as a file management and work-sharing system for all internal design documents, which will be AutoCad drawings, Revit drawings, calculation spreadsheets, and may also include other design and/or modeling software files.
- **Public Project Document Manager** – The iBuild repository of all Project documents.
- **Technical Documentation** – Project documentation of a technical nature such as design criteria, calculations, drawings, reports, technical correspondence, contracts and specifications.

1.3 Responsibility

- **Massachusetts Bay Transportation Authority (MBTA)** – Through its sponsoring department, Design & Construction, the MBTA requires that all project participants communicate in accordance with project policies and establishes formal lines of project communication between design and construction staff, other MBTA and MassDot departments and divisions, the PM/CM and project participants.
- **Program Manager/Construction Manager (PM/CM)** – The PM/CM shall ensure that project communications practices are in compliance with this plan and ensure that all PM/CM subconsultants as well as project designers and contractors conduct project related correspondence in accordance with this plan and its standards.
- **Design Build Contractor (DB)** – A professional organization, contracted with MBTA, responsible for providing the technical expertise and management to final design, buy-out and construct the project in accordance with the project documents.
- **Other Agencies** are responsible for providing input to the project for interfaces and coordination as required.

1.4 Referenced Management Plans

1.4.1 Change Control Plan

Many changes that occur during the course of the design, construction or testing/start-up phase of the Project can be accomplished routinely and are not subject to a formal change control process. Those changes that must be in conformance with the change control process fall into the following categories:

- Changes which materially affect elements of the project's baseline configuration, cost or schedule
- Changes that materially affect work that is the subject of an awarded contract. These contracts include:
 - Professional service contracts (e.g., design and property appraisals)
 - material/equipment procurement contracts
 - construction contracts

The Change Control Procedures constitute a system that operates within and in support of the Project's primary control systems for: Configuration Management, Quality Assurance, Cost Control and Schedule Control. The process for change control within each of the primary control systems includes these common elements:

- Timely identification of potential changes as soon as they become apparent
- Expeditious evaluation of the necessary changes through effective delegation of authority
- Prompt evaluation of the change's impact and justification
- Through the Document Control Plan, provide clear and prompt communication of the changes deemed appropriate and approved

Document Control will play a central role in communicating documentation related to the Change Control Plan.

1.4.2 Configuration Management Plan

It is the policy and purpose of the Green Line Extension (GLX) Project to develop procedures for establishing, monitoring and revising baseline documentation to reflect final design, construction, procurement, system testing and start-up phases of the project. The Configuration Management Plan is a management control tool which must be responsive to the requirements of the GLX and its development activities. The scope of the Configuration Management Plan is to establish procedures designed to provide that:

- The contract and revision status of any Baseline Document at any point in time is known, clearly identified, accurately recorded and provided to all project participants
- The integrity and status of the GLX Baseline Documents are maintained throughout all program phases
- Coordination of approved changes between MBTA, the Program Management/Construction Management Consultant (PM/CM), the Design-Build Contractor (DB) and other participants is effective and timely

- Changes to the defined project Baseline Documents are controlled and evaluated for impact on all related system aspects and incorporated only after review and approval by the appropriate authority
- Current revisions of Baseline Documents are distributed in a timely manner to all project participants

The Document Control Plan will play a critical role in communicating the evolving Baseline Documents and the “up-to-date” project configuration.

1.4.3 Quality Assurance Plan

A Quality Assurance Plan has been established for the GLX Project. Consistent with Element 4, Document Control, of the FTA’s QA/QC guidelines, this Plan has established quality standards for control of all Project documents. Specifically, these standards address the review and approval of documents by authorized personnel, required logging and indexing of documents.

1.5 Document Control Overview

Document Control is the management and administration of the Project documents, including technical and engineering design data, contract and procurement documents and management approved procedures, manuals, plans, etc. within an automated document control system (iBuild). The Project documents are subject to controlled distribution to ensure that changes and updates to key documents are made in a controlled and systematic manner and that all parties are working to the latest version of the documents.

Management documents approved by MBTA senior management for use on the MBTA GLX Project are also subject to formal document control. Examples of these documents might include the Program Management Plan, Configuration Management Plan, System Safety Program Plan, Operation and Maintenance Plan, Design Criteria Manual, Change Control Procedures, Construction Administration and Management Plan and others. Controlled distribution of these documents is necessary to ensure that key MBTA GLX Project participants and organizations receive and work from the latest version of each document. Key management documents are identified for formal document control when they are first prepared and approved as baseline documents. Should project documents be too large to transfer through standard communication means, an FTP site has been established (WEBSITE: <ftp://transfer.gilbaneco.com> Username: MBTAGLX, Password: 5212glx..

1.6 Plan Overview

Document Control is required for effective configuration control and clear project communication. The documents to be controlled include technical documents and programmatic documents. Document control is required to:

- Control the storage, retrieval and distribution of all Project drawings, specifications, technical documents and non-technical information;
- Control the storage, retrieval and distribution of all Project central files;
- Control the storage, retrieval and distribution of all Project deliverables contained in the CTPDL; and,

- Control all archived information regarding the Project.

1.7 Project Documents

Documents to be controlled for the GLX are as follows:

- Technical Documents, such as Program Management Plans, Environmental Reports, Procurement Documents.
- Drawings and Sketches,
- Correspondence, such as meeting minutes, incoming and outgoing correspondence, e-mail correspondence (as appropriate).
 - Private e-mail is not appropriate for project documents, other than informal communication between project participants. Should e-mail conversations evolve such that critical project communication has been addressed, the project participant shall carbon copy the document control e-mail address, mbtagle@gilbaneco.com so that this digital communication may be stored in iBuild.

Procedures specific to each document type have been established and are outlined in following Sections 2 through 4.

1.8 Software Application Platforms

The Document Control Plan includes two platforms for managing, filing, storing, releasing and maintaining technical and project documents. The goal of the document control platforms is to facilitate the status and location of all project documents and that the current revisions of program documents are readily available to key and appropriate personnel in a timely manner. iBuild will be the primary application to control documents on the GLX project. Projectwise will be used to share design documents in an internal, draft development context.

SECTION 2

2.0 Technical Document Control

The policies and purposes of this section are:

- To provide that originals of controlled documents cannot be modified except by authorized people under authorized circumstances;
- To allow proper distribution of controlled documents, both original issue and updates;
- To provide proper storage and preservation of controlled documents for archives;
- To oversee proper distribution of contract documents; and,
- To initiate a distribution tracking system that is efficient over the duration of the project and incorporates a flexible sorting structure, increasing the accuracy of routing, decreasing document distribution staff requirements and providing document uniformity.

2.1 Scope Overview

The PM/CM intends to maintain centralized control of certain key technical documents produced as part of the MBTA GLX Project in order to facilitate configuration control. This procedure applies to all technical documents (management reports, plans, calculations, criteria, specifications, milestone drawings (see section 3), etc..) produced in the course of design and implementation of the MBTA GLX, identified in this Document Control Plan are subject to control.

2.2 Definitions

Controlled Document – Those documents considered essential to control of the Project Engineering Baseline and for which a formalized change process for revisions/updates after initial issue is required.

Controlled Document List – A list that itemizes all controlled documents.

Initial Distribution List – A list to establish the number of copies required for the first distribution.

Master List – The distribution list maintained by PM/CM's Document Control Office for each controlled document.

2.3 Responsibility

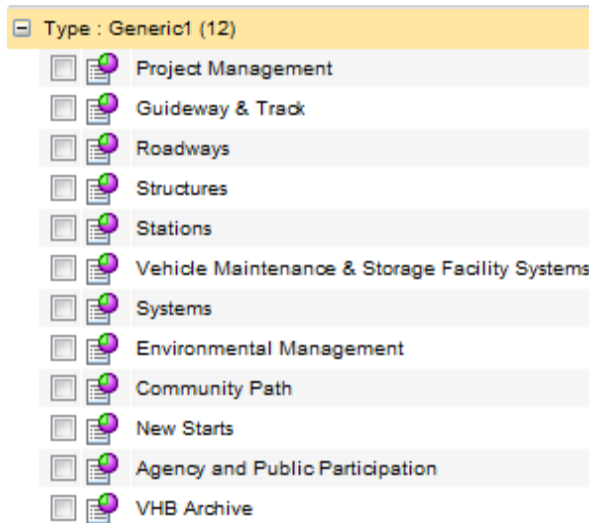
The PM/CM's Document Control Office is responsible for maintaining up-to-date master distribution lists for controlled documents, distributing controlled documents and updates and maintaining receipt files. These distribution lists will be maintained to ensure that updates are distributed widely and uniformly.

MBTA manager, PM/CM and other project participants will identify which individuals within their respective organizations should receive copies of each controlled document. These managers are responsible for providing the Document Control Office with the correct names, titles and addresses.

The PM/CM's Document Control Office will also be responsible for storing the electronic files on which controlled documents are recorded and for coordinating updates as required.

2.4 iBuild Document Structuring

iBuild is the online database where all technical documents, correspondence and record drawings will be stored. All documentation will be located within the appropriate application in iBuild. All reports, drawings and documents will be filed or stored in the following structure (see Appendix A for detailed information):



Project Management

The Project Management folder shall contain all documents related to Project Management including Cost Estimating, Monitoring and Reporting, Safety Plans, the Project Management Plan and all additional Plans mentioned therein, Risk Assessment, Procedures, Monthly Reporting and Schedule, Meetings, Presentations, Powerpoints, Photos, Briefings, D/B Procurement Document Preparation and D/B Contractor Selection, Design Management, Quality Assurance/Quality Control, Force Account Review Committee, CRAVE¹ and Risk Register.

Guideway & Track

The Guideway & Track folders shall consist of documents related to Track Engineering, Drainage and Utilities within the Corridor and in support of the project elements, Design Calculations, Full and Partial Property Acquisition Plans, Construction Phasing Plan Preparation (including Commuter, Freight and Green Line track), Erosion and Sedimentation Control Plans, Surveying and Geotechnical.

Roadways

The Roadways folder shall include any and all documentation related to Design Calculations, Intersection and Roadway Improvement, Traffic Signals, Signage, Pavement Markings, Functional Design Reporting, Pedestrian Traffic Modeling, Construction Staging and Traffic Management.

Structures

The Structures folder shall contain all documentation related to Design Calculations, Bridges, Viaducts, Retaining Wall Design and Facility Deconstruction.

¹ Cost Risk Analysis + Value Engineering (CRAVE) – An economic and statistical model to account for and manage uncertainties and risks throughout the project lifecycle.

Stations

The Stations folder shall contain subfolders for each station (i.e., Lechmere, Brickbottom, Gilman Square, Lowell Street, Ball Square, College Avenue and Union Square). Each subfolder shall contain documentation related to Architectural Design, Structural Design, Mechanical and Electrical Design, Site Work, Landscape Design and Communications and Passenger Information Systems. All documentation related to Urban Design Guidelines shall also be located in a separate subfolder under the Stations folder.

Vehicle Maintenance & Storage Facility Systems

The Vehicle Maintenance & Storage Facility Systems folder shall contain documentation regarding Program Verification, Site Plans, Architectural Drawings, Structural Plans, Lighting Design, Mechanical and Electrical Design, Maintenance Shop and Yard Equipment, Landscape Drawings and Yard/Track Plans.

Systems

The Systems folder shall consist of all documentation related to the Overhead Contact System, Traction Power System, Corrosion Control/stray Current Mitigation, Green Line Light Rail track Train Control Systems and Commuter Rail Train Control Systems.

Environmental Management

The Environmental Management folder shall contain all documentation related to Site Remediation, Environmental Compliance and Sustainable Design Requirements.

Community Path

The Community Path folder shall contain all documentation and reporting related to Alignment and Typical Sections, Structures and Landscape plans.

New Starts

The New Starts folder shall contain all documentation related to New Starts Strategy, FY 2010 New Starts Submittal, Request to Enter final Design, Request to Enter into Construction, Before and After Study, Operation Analysis to Support New Starts, Economic Forecasts, Financial Analysis Model, MBTA Financial Plan, New Starts Financial Analysis Report and New Starts Support Services.

Agency and Public Participation

The Agency and Public Participation folder shall include all documentation related to Regulatory Approvals and Stakeholder Involvement including Public Meetings, Minutes, Fact Sheets and Mailing Lists.

VHB Archive

The VHB Archive folder shall consist of all documentation that is received from VHB regarding the initial phase of the GLX Project.

The complete (as of the release of this Plan version) File Structure is found in Exhibit A-2.

2.5 Plan Overview – Document Control

2.5.1 Master List

A master distribution list for all controlled documents will be established and maintained. Dates for initial document issue, revisions and updates will be recorded for each document recipient. Subsequent additions and revisions to controlled documents will be distributed in accordance with the master distribution list. The master distribution list will be distributed quarterly.

2.5.2 Generation of Initial Distribution List

An initial distribution list will be compiled for each controlled document. Each Participant Project Manager should provide an e-mail distribution list for their personnel and subconsultants.

2.5.3 Distribution

Document Control will handle initial distribution to MBTA, PM/CM and other consultant staff or subconsultants only if each end receiver's name and e-mail address are submitted to Document Control by distribution day.

2.5.4 Notice of Electronic Receipt

A notice of electronic receipt should accompany each major submittal. The end recipient should provide this notice of electronic receipt to the PM/CM Document Control Office by response e-mail. These completed notices of electronic receipt will be logged individually for each document recipient.

2.5.5 Revision to Controlled Documents

Revisions to all controlled documents will be authorized only through the change control process (see Change Control Plan). Document Control shall be responsible for processing all revisions to controlled documents and for their distribution.

Each revision to a controlled document will be sequentially numbered, with the initial issue considered as "Revision 0" and the first actual revision being "Revision 1". With each revision there will be included a revision history sheet to capture the document's revision over the life of the project. For the purposes of revisions, each section of a controlled document, with the exception of the System Description and Operations and Maintenance Plan, is considered a separate document. The footer of each page that is changed will indicate the revision number and date.

Document Control will maintain and periodically distribute a "Controlled Document Revision Record" that indicates the most current revisions to each controlled document and the date released.

2.5.6 iBuild Disaster Recovery

iBuild data will be backed up daily to disk with a running two previous days worth of data stored locally in Providence, RI. In addition, this data is replicated at a Disaster Recovery

site in New Jersey. As still on disk, this data will be highly available and easy to access in case of recovery.

iBuild data will also have back up data to tape, with tapes taken off site each week. Incremental tape backups are performed Saturday through Thursday and do a full back up on Fridays. Weekly tapes are cycled through so the previous month's data is accessible if needed. This data is not as highly available as the data saved to disk. Consequently the tape request process for data storage may delay recovery.

SECTION 3

3.0 Projectwise Drawing Control

The policies and procedures for this section are:

- To establish a master drawing log which is maintained centrally;
- To ensure that prints are ordered and distributed in timely fashion for review and/or information;
- To ensure that original drawings are properly handled, stored and preserved;
- To provide for proper review and documentation of changes to drawings;
- To ensure that all project participants have current revisions of all drawings.

3.1 Scope

Drawings that describe the MBTA Green Line Extension (GLX) shall be subject to the control of the Document Control Office. When not being processed, original baseline drawings shall be centrally maintained and controlled in Projectwise by the Document Control Office. This procedure applies to all Advanced Conceptual and Preliminary Engineering (PE) drawings produced by the PM/CM and their subconsultants for the GLX Project.

Generally, Project-specific documents that are controlled include the milestone submittals of design documents (i.e., design packages at 30%, 60%, 90% and 100%), procurement and contract documents and records, safety documents, operating plans and procedures and other documents prepared in compliance with laws or regulations. Individual GLX managers, with assistance from the PM/CM, are responsible for identifying project-specific documents which require formal document control.

3.2 Definitions

- **Approved drawing** – A drawing that has been signed off by the PM/CM's designated design manager and whose content has been approved by the MBTA.
- **Contract drawing** – A drawing included in a submitted contract package. Used in this procedure to include any drawing behind a cover sheet entitled "Contract Drawing." Specifically includes the following three types of drawings:
 - Preliminary Engineering drawing – A drawing, sketch, or detail developed to be issued as part of the Design-Build proposal package when completed;

- Bid set drawing – An approved drawing or set of drawings issued for D/B Procurement; and
- Approved drawing – A drawing approved by both MBTA and the PM/CM.
- **Controlled drawing** – Those drawings for which a formalized change process for revisions/updates after initial issue is essential.
- **Master drawing log** – A document that lists all drawings, by contract or system element, for which the PM/CM Document Control Office has issued drawing numbers. The log reflects drawings by full title, latest revision, location and status.
- **Preliminary Engineering (PE) drawing** – A drawing reflecting preliminary engineering for a system element. General plans, site plans and plan and profile drawings are typical PE drawings.
- **Unapproved drawing** – A drawing not yet approved by both MBTA and the PM/CM.

3.3 Responsibility

The PM/CM Document Control Office is responsible for maintaining up-to-date a master distribution list for controlled drawings, distributing controlled drawings and updates and maintaining e-mail confirmations.

The Document Control Office shall also be responsible for storing PDFs of controlled drawings, for maintaining reproducibles of each successive revision of a controlled drawing and for releasing originals for revision or reproduction.

Project Managers of MBTA and the PM/CM, shall identify those individuals, within their respective organizations, who should receive copies of each controlled drawing set. These managers are responsible for providing Document Control with the correct names, titles and addresses.

3.4 Plan Overview – Drawing Control

3.4.1 Master Drawing Log

Drawing numbers shall be listed in a Master Drawing Log, along with the drawing titles and the name of the responsible Project Engineer. The Master Drawing Log shall be organized by project element and contract packages for Design-Build bid drawings.

At the appropriate time in the history of each drawing, dates for each drawing issue and current revision shall be updated on the Master Drawing Log. The “comments” column shall include such information as reviews being held or suspension of drawings.

The Master Drawing Log shall be stored in Projectwise as a protected excel file and kept up-to-date. An electronic copy shall be issued at monthly intervals and posted on iBuild for distribution to any MBTA or PM/CM member who so requests.

3.4.2 Maintenance of Drawing Files

The Document Control Office shall maintain files of all currently issued, revised and obsolete CAD drawings in Projectwise. The files shall contain the original PDF (once it is subject to control, as defined in the Configuration Management Plan) and copies of the associated CAD

files. Earlier versions of drawings, as well as obsolete drawings, shall be maintained in a historical file in Projectwise.

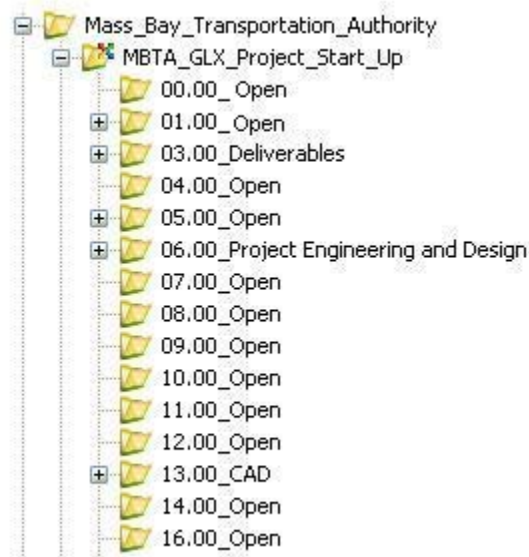
Drawings shall be filed in the order listed in the index. Final design review drawings shall be filed by segment and contract number in the order listed in the index.

Design review drawings shall be maintained as part of a complete design review package, containing calculations, specifications review comments and responses and other data pertinent to the review.

The data from the prior review becomes historical upon receipt of the next review point data and shall then be removed from the active files to semi-archive status.

3.4.3 Projectwise Folder Structure

All working design files and drawing files shall be maintained and controlled in the software application, Projectwise. The overall folder structure in Projectwise shall be as follows:



03.00 Deliverables

The Deliverables folder shall house the contract drawing files for 30%, 60%, and 90% submittals. All deliverable files shall be in PDF format.

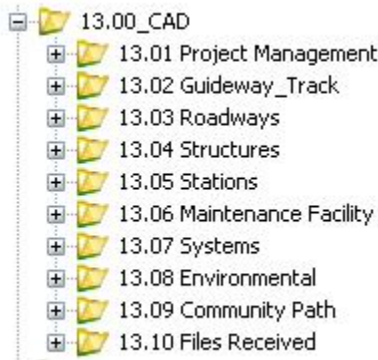
06.00 Project Engineering and Design

The project engineering and design folder shall contain any design calculations, spreadsheets, or other design tools not in AutoCAD or Revit format. The folders shall be broken down by project element as follows:



13.00 CAD

The CAD folder shall hold all AutoCAD and Revit drawing files.

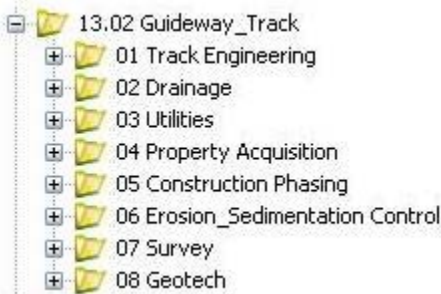


13.01 Project Management

The Project Management folder shall house all general AutoCAD and Revit information. Documents included here are the Master Drawing List, CAD manual, graphics, logos, and color table files for plotting. Also, all general sheet files (i.e. Cover and Index Sheets) will be maintained in this folder. Additional items may be included as the project progresses.

13.02 Guideway_Track

The Guideway and Track folder shall contain all drawing files involved with the realignment of the commuter rail tracks and proposed Green Line track. This folder is further broken down into the following discipline folders:



13.03 Roadways

The Roadways folder shall contain all drawing files involved with traffic improvements and traffic management of all travel ways impacted by the Green Line Extension.

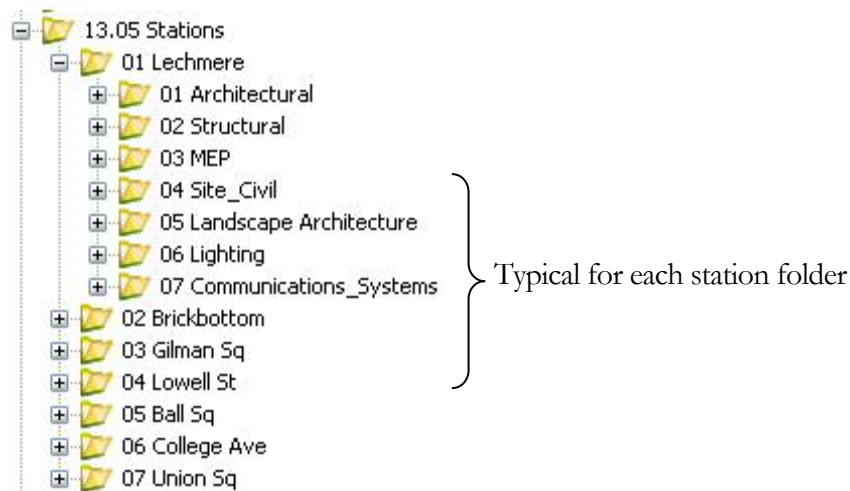
13.04 Structures

The Structures folder shall contain drawing files for all bridges, viaducts and retaining walls. The drawing files of the deconstruction of the existing Lechmere Station and viaduct shall also be housed here. The Structure folder shall be broken down into the following folders:



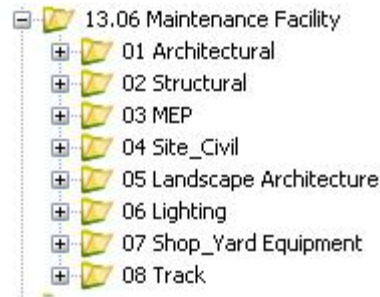
13.05 Stations

The Stations folder shall hold all drawings involved with the proposed seven (7) stations along the Green Line Extension. The folder shall be broken down by station location as follows:



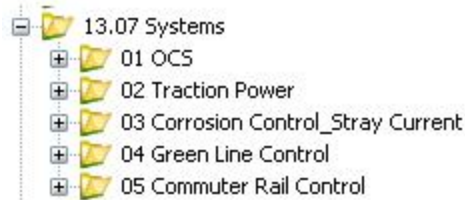
13.06 Maintenance Facility

The Maintenance Facility folder shall contain all drawings involved with the vehicle maintenance and storage facility. The folder shall be broken down as follows:



13.07 Systems

The Systems folder shall hold all drawings relevant to power and control systems for the proposed Green Line and commuter rail tracks and trains. The folder structure shall be as follows:



13.08 Environmental

The Environmental folder shall contain any drawings that involve site remediation or sustainable design requirements.

13.09 Community Path

This folder shall contain all drawings involved with the design of the Community Path, which include horizontal and vertical alignments of the path, pedestrian structures, and landscape designs. The folder shall be as follows:



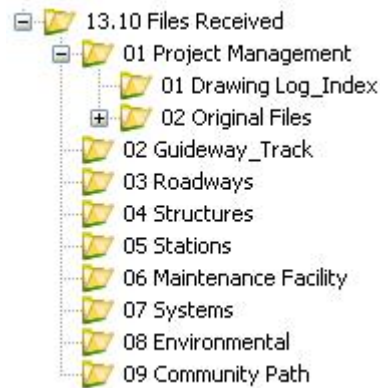
All folders mentioned above shall control all drawing files with a common folder structure. Within each of the project specific folders, there shall be a Working Folder, a Reference Folder, and a Sheet Folder.

- The Working Folder shall contain any drawing files used for engineering and/or design purposes and that are not for contract submittals.
- The Reference Folder shall control the design drawing files that will be used for the contract sheet files and also for reference to drawing files of other elements of the project.

- The Sheet Folder shall store the drawing files that are for contract submittals. For drawing files within each Sheet Folder, the only controllable objects shall be annotation for notes and callouts and any detail drawings. The sheet border and any design reference files shall be treated as external references, which can only be revised from their respective Reference Folders. Once an AutoCAD or Revit sheet file is ready for submittal, it shall be plotted to PDF format and placed in the Projectwise Folder 3.00 Deliverables under the corresponding submittal milestone (i.e. 30% submittal or 60% submittal).

13.10 Files Received

The Files Received folder shall hold all original drawing files received from other agencies. The folder structure shall be the following:



3.4.4 Control of Revit Drawings

Architectural drawings created from the Autodesk software Revit shall be maintained and controlled in Projectwise in 2011 format. For files or objects that need to be referenced to an AutoCAD 2010 drawing file, a folder shall be created within each Reference Folder to store “AutoCAD 2010 converted” files.

3.4.5 Storage of Obsolete PDFs

When a PDF stored in Document Control is superseded or becomes void, the responsible Consultant Project Manager shall inform Document Control in writing. The file name of the original PDF shall be appended with the word “SUPERSEDED” and all reproducible copies shall be stamped “SUPERSEDED” and dated in the lower right margin of the drawing. Document Control shall update the Master Drawing Log to add “Superseded, date” in the status column. The PDF and all reproducible copies shall then be placed in a separate storage area within Document Control.

3.4.6 Projectwise Disaster Recovery

Projectwise data will be backed up daily to tape, with tapes taken off site each week. Incremental tape backups are performed Monday thru Thursday and do a full back up on Fridays. All daily and weekly tapes are stored locally in Boston, MA.

SECTION 4

4.0 Correspondence Control

The policies and procedures for this section are to specify correspondence controls and procedures. Project participants shall use uniform document formats and consistent processing practices. This policy will apply to e-mail as well as traditional correspondence means.

4.1 Scope

Project correspondence will be uniquely identified, rapidly distributed, efficiently controlled, uniformly filed and readily retrievable through iBuild. Types of correspondence to be controlled include design reviews, e-mails, letters, meeting agendas, meeting minutes, memos, etc.

4.2 Responsibility

Document Control shall function as the Project mailroom and shall be responsible for Correspondence Control including receipt, identification, distribution, storage and management. All project correspondence, outgoing and incoming by U.S. Mail, facsimile and courier service shall be centralized in Document Control. In addition, all applicable project e-mail will be archived with document control systems. Project participant leadership shall assure that their staffs are familiar with the Project Communications Standard as outlined below.

4.3 Plan Overview – Correspondence Control

4.3.1 Identification of Correspondence

Upon receipt in Document Control, all paper including scanned documents transmitted via e-mail shall be logged sequentially according to the date and time received. Each document shall contain this sequential document number, added in the upper right hand corner of the first sheet of the correspondence. All project documents will be uploaded to iBuild and filed in accordance with the meta data field code index, which follows the project work breakdown structure (see Appendix A-2).

4.3.2 iBuild Document Management System

The iBuild Document Management System will be used to control all incoming/outgoing correspondence. The database has meta data fields (see Appendix A-2) that can be used to categorize a document. These “Key Fields” include the document number, type of correspondence, the document date and other key elements of each correspondence. Many of these fields (e.g., component and document type) are completed by a draw down menu while others are “free filled” (e.g., title, notes). Document Control staff will perform all uploads of documents but will rely on project staff to properly categorize all project documents for convenient, efficient retrieval.

4.3.3 Outgoing Correspondence

- The individual responsible for originating a document shall draft the communication and specify the distribution list. When necessary, the originator will prepare a circulation sheet, circulate the document for comment, resolve all comments and amend the document as necessary;
- After final typing, proofreading and signature, the originator shall convert the document to PDF and e-mail correspondence to Document Control, where it shall be marked with the document number and be entered into the Document Control Log;
- Documents addressed to MBTA and documents that provide contractual direction to other consultants, contractors or suppliers must be submitted to the Program Director for concurrence and signature;
- Signed documents are copied, filed and distributed by Document Control, with the original sent to the addressee.

4.3.4 Incoming Correspondence

- A letter addressed to the PM/CM and copies of letters addressed to someone other than the PM/CMC shall be date stamped, assigned a sequential document number, logged into the Document Control Log and a copy is e-mailed to the addressee. The addressee shall assign appropriate distribution and return the correspondence to Document Control.
- A copy of a letter addressed to the PM/CM shall be forwarded directly to the “Copy To” addressee, since it is assumed that the letter is or will be in the file. If there is any question as to filing status of individual correspondence, place the correspondence in the filing system in order to assure that all Project correspondence is present; and,

NOTE: Project personnel not located in the project office who receive project correspondence must forward a copy to the project office if the Project Document Control office has not been copied.

4.4 Correspondence Format

Correspondence uniformity facilitates review, identification and control and results in a professional Project appearance. Therefore, it is intended that Project correspondence be formatted as follows:

- Sample Design Review Comment Form (see Exhibit A-3)
- Sample Meeting Minutes (see Exhibit A-4)
- Sample Project Memorandum (see Exhibit A-5).

SECTION 5

5.0 Policies and Procedures

To provide a procedure that insures the efficient turnover of designated drawings, technical documents and correspondence acquired, originated or received by Document Control during this Project.

5.1 Scope

All project, written, hardcopy, or electronic documentation associated with the MBTA GLX shall be turned over to the MBTA at the end of the Project.

5.2 Responsibility

The Document Control Group shall be responsible for the execution of this section.

5.3 Procedures

5.3.1 Document Control Turnover

Document Control is responsible for the following:

- Control the storage, retrieval and distribution of all project drawings, specifications, technical documents and non-technical information;
- Control the storage, retrieval and distribution of all project central files;
- Control the storage, retrieval and distribution of all project deliverables contained in the CTPDL; and,
- Control all archived information regarding the Project.

At the end of the Project, Document Control shall provide the MBTA with a complete inventory list of all data stored in iBuild. Representatives from both Document Control and MBTA shall conduct an inventory of this data, to ensure it is in good condition.

Upon completion of this physical inventory, the MBTA representatives shall identify all data which is missing and which is in poor condition. The Document Control representatives shall then replace all missing and substandard data. Upon receipt of the replacement data, the MBTA representatives shall sign-off the inventory list and provide the PM/CM with written acceptance of these Turnover Documents.

Appendix A

Exhibit A-1

Element 4, Document Control, FTA QA/QC Guidelines

2.2.4 Element 4: Document Control²

Procedures for control of project documents and data should be established and maintained. The document control measures should ensure that all relevant documents are current and available to all users who require them.

Control of project documents includes the review of documents by authorized personnel, the distribution and storage of these documents, the elimination of obsolete documents and control of changes to the documents.

Copies of the documents should be distributed so that they will be available at all locations that need them for effective functioning of the quality management system. Obsolete documents should be promptly eliminated from each work location. Any superseded documents retained for the record should be clearly identified as such.

The same authorized personnel who reviewed and approved the original documents, unless the control procedures specifically allow otherwise, should review changes to the documents and data. Changes should be promptly distributed to all locations, along with a master list enumerating the current revisions of each document.

Following are examples of the types of documents requiring control:

- Drawings
- Specifications
- Inspection procedures
- Test procedures
- Special work instructions
- Operational procedures
- QA program and procedures.

Comment:

A useful tool for keeping track of project documents is the Design Output Index that lists every document developed for the execution of the project. The Design Output Index contains a listing of the latest revisions of the following:

- Drawings
- Technical specifications
- Special processes

² http://www.fta.dot.gov/prINTER_friendly/publications_3876.html

- Test specifications
- Engineering change notices.

Exhibit A-2
Meta Data Field Codes

- Description
- Document Date
- Project Document Type (choose one of the following):
 - Accounting Document
 - Administration Document
 - Change Management Document
 - Closeout Document
 - Contract Document
 - Engineering Document
 - Insurance and Bonds Document
 - LEED Document
 - Miscellaneous Document
 - Permits Document
 - Preconstruction Design Phase Document
 - Project Photo Document
 - Purchasing Document
 - Regulatory Services Document
 - Report Document
 - Safety Document
 - Schedule Document

Task No. = Work Breakdown File Structure:

- 01 Project Management
 - 01.1 Project Management
 - 01.2 Cost Monitoring and Reporting
 - 01.2.1 General
 - 01.2.2 Cost Estimating
 - 01.2.3 Monthly DBE Compliance Reports
 - 01.2.4 Notifications to Owner's Representative
 - 01.3 Project Management Plan
 - 01.3.1 Project Management Plan
 - 01.3.2 Project Quality Assurance Plan
 - 01.3.3 Records Management Plan
 - 01.3.4 Document Control Plan
 - 01.3.5 Environmental Management Plan
 - 01.3.6 Project Construction turn over to Operation Transition Plan
 - 01.3.7 Project Safety and Security Management Plan
 - 01.3.8 Training Program

- 01.4 Risk Assessment
 - 01.4.1 FTA Risk Assessment
 - 01.4.2 CRAVE
- 01.5 Procedures
- 01.6 Monthly Reporting and Schedule
 - 01.6.1 Monthly Reporting
 - 01.6.2 Schedule
- 01.7 Meetings/Presentations/Briefings
 - 01.7.1 Regular Meeting with MBTA (design)
 - 01.7.2 FTA/PMOC Meetings
 - 01.7.3 Document Preparation for Meetings
 - 01.7.4 Meeting Minutes
- 01.8 D/B Procurement Document Preparation and D/B Contractor Selection
 - 01.8.1 General
 - 01.8.2 Design-Build Procurement Strategy Development Workshop
 - 01.8.3 Evaluation and Selection Plans
 - 01.8.4 Industry Meetings
 - 01.8.5 Request for Letters of Interest (RLOI)
 - 01.8.6 Request for Qualifications (RFQ)
 - 01.8.7 Request for Proposals
- 01.9 Design Management
 - 01.9.1 Meetings
 - 01.9.2 Design Criteria Manual
 - 01.9.3 Specifications
- 01.10 Force Account Review Committee
- 02 Guideway & Track
 - 02.1 Track Engineering
 - 02.1.1 Refine Track Design Criteria
 - 02.1.2 Commuter Rail Alignment Design
 - 02.1.3 Freight Railroad Alignment Design
 - 02.1.4 Green Line Alignment Design
 - 02.1.5 Plans, Profiles, Typical Sections
 - 02.2 Drainage and Utilities
 - 02.2.1 Drainage
 - 02.2.2 Utilities
 - 02.3 Property Acquisition Plans
 - 02.4 Construction Phasing Plan Preparation (Commuter, Freight and Green Line Track Construction)
 - 02.4.1 Commuter Rail and Green Line Track Construction
 - 02.4.2 Freight Railroad Track Construction
 - 02.5 Erosion and Sedimentation Control Plans
 - 02.6 Surveying
 - 02.7 Geotechnical
- 03 Roadways
 - 03.1 Intersection/Roadway Improvement Drawings
 - 03.2 Traffic Signal, Sign and Pavement Markings

- 03.3 Functional Design Report
- 03.4 Pedestrian Traffic Modeling
- 03.5 Construction Staging/Traffic Management
- 04 Structures
 - 04.1 Bridges and Viaducts
 - 04.1.1 Design Definition Document Elements for Bridges and Viaducts
 - 04.1.2 Advanced Conceptual Bridge and Viaduct Design
 - 04.1.2.1 Walnut Street
 - 04.1.2.2 School Street
 - 04.1.2.3 Cedar Street
 - 04.1.2.4 College Ave
 - 04.1.2.5 Red Bridge
 - 04.1.2.6 Lowell Line over Washington Street
 - 04.1.2.7 Green Line – Union Square Branch Outbound Viaduct
 - 04.1.2.8 Green Line – Union Square Branch Inbound Viaduct
 - 04.1.2.9 Green Line – Lechmere Viaduct
 - 04.1.3 60% Bridge Design
 - 04.1.3.1 Medford Street
 - 04.1.3.2 Lowell Street
 - 04.1.3.3 Broadway
 - 04.1.3.4 Lowell Line over Harvard Street
 - 04.1.3.5 Fitchburg Line over Medford Street
 - 04.2 Retaining Wall Design
 - 04.2.1 Design Definition Document
 - 04.2.2 Retaining Wall Design
 - 04.2.3 Noise and Vibration Analysis Update
 - 04.2.4 Corridor Landscape
 - 04.3 Facility Deconstruction
 - 04.3.1 Design Definition Document
 - 04.3.2 Research and Investigation
 - 04.3.3 Drawings and Specifications
- 05 Stations
 - 05.1 Lechmere Station/Lechmere Bus Terminal
 - 05.1.1 Architectural Design
 - 05.1.2 Structural Design
 - 05.1.3 Mechanical and Electrical Design
 - 05.1.4 Site Work
 - 05.1.5 Landscape Design
 - 05.1.6 Communications and Passenger Information Systems
 - 05.2 Brickbottom Station (Washington Street)
 - 05.2.1 Architectural Design
 - 05.2.2 Structural Design
 - 05.2.3 Mechanical and Electrical Design
 - 05.2.4 Site Work
 - 05.2.5 Landscape Design
 - 05.2.6 Communications and Passenger Information Systems

- 05.3 Gilman Square Station (Medford Street)
 - 05.3.1 Architectural Design
 - 05.3.2 Structural Design
 - 05.3.3 Mechanical and Electrical Design
 - 05.3.4 Site Work
 - 05.3.5 Landscape Design
 - 05.3.6 Communications and Passenger Information Systems
- 05.4 Lowell Street Station
 - 05.4.1 Architectural Design
 - 05.4.2 Structural Design
 - 05.4.3 Mechanical and Electrical Design
 - 05.4.4 Site Work
 - 05.4.5 Landscape Design
 - 05.4.6 Communications and Passenger Information Systems
- 05.5 Ball Square Station (Broadway)
 - 05.5.1 Architectural Design
 - 05.5.2 Structural Design
 - 05.5.3 Mechanical and Electrical Design
 - 05.5.4 Site Work
 - 05.5.5 Landscape Design
 - 05.5.6 Communications and Passenger Information Systems
- 05.6 College Avenue Station
 - 05.6.1 Architectural Design
 - 05.6.2 Structural Design
 - 05.6.3 Mechanical and Electrical Design
 - 05.6.4 Site Work
 - 05.6.5 Landscape Design
 - 05.6.6 Communications and Passenger Information Systems
- 05.7 Union Square Station
 - 05.7.1 Architectural Design
 - 05.7.2 Structural Design
 - 05.7.3 Mechanical and Electrical Design
 - 05.7.4 Site Work
 - 05.7.5 Landscape Design
 - 05.7.6 Communications and Passenger Information Systems
- 05.8 Develop Urban Design Guidelines
- 06 Vehicle Maintenance and Storage Facility
 - 06.1 Program Verification
 - 06.2 Site Plans
 - 06.3 Architectural Drawings
 - 06.4 Structural Plans
 - 06.5 Lighting Design
 - 06.6 Mechanical and Electrical Design
 - 06.7 Maintenance Shop and Yard Equipment
 - 06.8 Landscape Drawings
 - 06.9 Yard/Track Plans

- 07 Systems
 - 07.1 Overhead Contact System (OCS)
 - 07.2 Traction Power System
 - 07.2.1 Traction Power System Design
 - 07.2.2 Substations and Power Study
 - 07.3 Corrosion Control/Stray Current Mitigation
 - 07.4 Green Line LRT Train Control Systems
 - 07.5 Commuter Rail Train Control Systems
- 08 Environmental Management
 - 08.1 Site Remediation Professional
 - 08.2 Environmental Compliance
 - 08.3 Sustainable Design Requirements
- 09 Community Path
 - 09.1 Alignment and Typical Sections
 - 09.2 Structures
 - 09.3 Landscape Plans
- 10 New Starts
 - 10.1 New Starts Strategy
 - 10.2 FY 2013 New Starts Submittal
 - 10.3 Request to Enter Final Design
 - 10.4 Request to Enter into Construction
 - 10.5 Before and After Study
 - 10.6 Operation Analysis to Support New Starts
 - 10.7 Economic Forecasts
 - 10.8 Financial Analysis Model
 - 10.9 MBTA Financial Plan
 - 10.10 New Starts Financial Analysis Plan
 - 10.11 New Starts Support Services
- 11 Agency and Public Participation
 - 11.1 Regulatory Approvals
 - 11.2 Stakeholder Involvement

Exhibit A-3

Sample Design Review Comment Form



MBTA Green Line Extension
Enter Name of Submission

INSTRUCTIONS FOR ENTERING DESIGN REVIEW COMMENTS

General Comments:

1. The Design Review Comment Form on the enclosed worksheet includes some protected cells and drop down lists to provide ease of data entry and to streamline reporting requirements.
2. The form is formatted to include up to 500 comments per worksheet. If more than 500 comments are required, please advise.

Instructions to Reviewers:

1. Fill out Design Review Header Information

Reviewer: Select from dropdown list
Date: Enter Date: MM/DD/YY
Entity: Select Entity from list provided

2. Save the file (Last Name- Operations Report Review)

Save File frequently to avoid loss of data

3. Enter Comments on the lines Provided

Comment#	Sequential Numeric Field (Locked/ Protected Cell)
Section	Select Section Number/Description (i.e. 1.0 Existing Conditions, 1.1 Introduction , 1.2 Existing Conditions, 1.2 Infrastructure, 1.2 Signal System, 1.2 AVI System, etc.)
Page	Free Form- Enter Page#
Comment	Free form Text describing the comment (Limit 255 Characters as per Excel Limitation)
Subject/Discipline	Select as applicable: Project Management, Guideway & Track, Roadways, Structures, Stations, Vehicle, Maintenance & Storage Facility, Systems, Environmental Management, Community Path, New Starts, Agency and Public Participation, Architectural, Civil, Communications, Daylighting, Electrical, Environmental Engineering, Fire Protection, Food Service, Geotechnical, Landscaping, Materials Management, Mechanical, Other/General, Parking &
Type	Select Comment Type- Code Requirement, Commissioning, Constructability, Cost/ Value Engineering, Design, Other, Programming

4. To Print comments - Select File & Print on the Menu Bar

5. Return the completed file via email to:

Comments should be returned NO LATER THAN **xx/xx/2011**
Please include the phrase "GLX Operations Report Review Comments" in the subject line of your e-mail responses



Project: MBTA Green Line Extension
Submission: Enter Name of Submission

Reviewer: Please use drop-down menu in spreadsheet

Entity: HDR/Gilbane Joint Venture Team

Date: 04/04/11

	White Cells- Free Form
	Yellow Shaded Cells- Selection from Drop Down List

Comment No.	Section	Page	Reviewer	Comment	Subject/Discipline	Type
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Exhibit A-4
Sample Meeting Minutes

December	January	February	March	April	May	June
M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

MEETING NOTES

MBTA Green Line Extension

Date:

Meeting:

Attendance ("A" in person, "T" by telephone) and Distribution
"D":

A D
A D
A D
A D
A D
T D

Item	Description	BIC	Due
General / Administrative			
3/2-1	<u>Upcoming Meetings/Milestones:</u>		
	•		
Notes:			
3/2-2	<u>General</u>		
Other Items:			

Please forward any comments, additions or corrections, via email, to Mike at mizzo@gilbaneco.com

Exhibit A-5
Sample Project Memo



Memo

HDR/Gilbane
155 Federal St.
Suite 304
Boston, MA 02110
Telephone 617
Facsimile 617

Task No.: xx.xx.xx
Doc. No.: xxxxxx

Date: April 6, 2011
To:
Organization:
From:
Organization:
Subject:
cc:

An Equal Opportunity-Affirmative Action Employer