

AU LONDON 2019



Landscape Architecture Revit Workflows

for Collaboration and Documentation

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Contents

- Introduction
- LA & Revit
- Revit Workflow
- Conclusion
- Bibliography

Introduction



Introduction . Speaker



Introduction . Aim

- Demonstrate How Landscape Architecture can be delivered in Revit
- Most of the tools for Landscape Architecture are present in Revit
- However there is a 'missing link' of tools that are critical to a Landscape Architecture workflow in Revit
- This 'missing link' has recently been filled by 3rd party software
- Which has led to a Complete workflow for LA delivery in Revit and we've been using this for the past year and a half

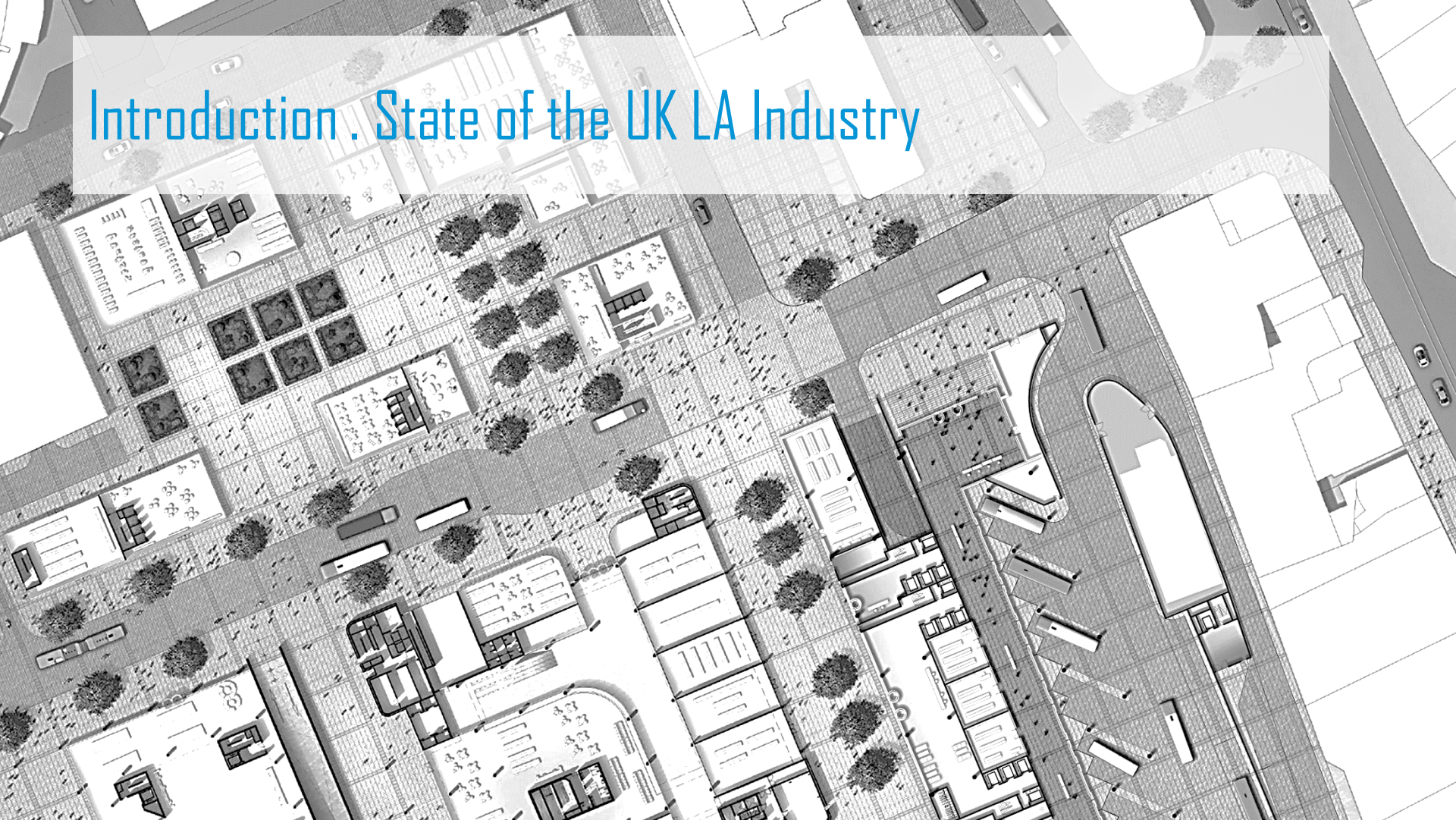
Introduction . Workflow for whom ?

- For Landscape Architects who are:
 - Using Revit but encountering difficulties due to the 'missing link'
 - About to jump into Revit but require clarity
- For Consultants / PMs / BIM Managers who need Landscape Architects delivering in Revit but have to convince them to upskill with a demonstratable workflow

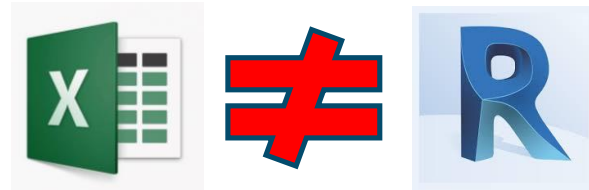
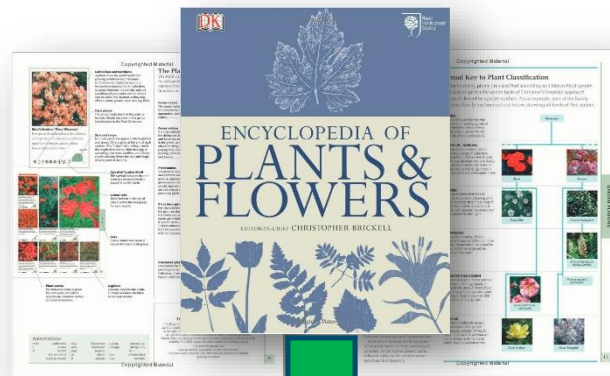
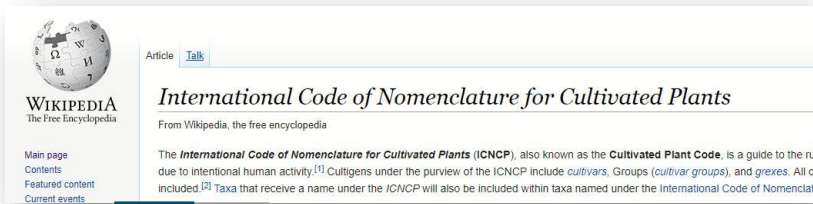
Introduction . Our LA studio's Journey



Introduction . State of the UK LA Industry



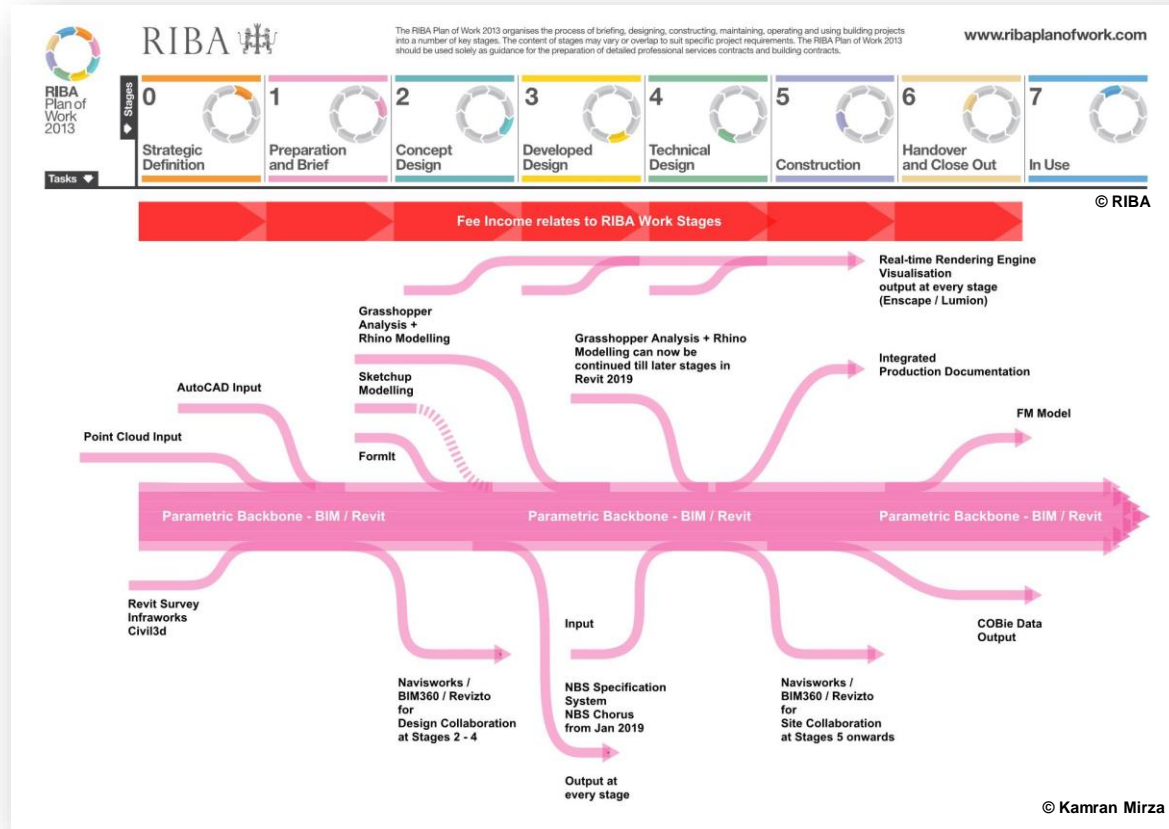
Introduction . State of the UK LA Industry



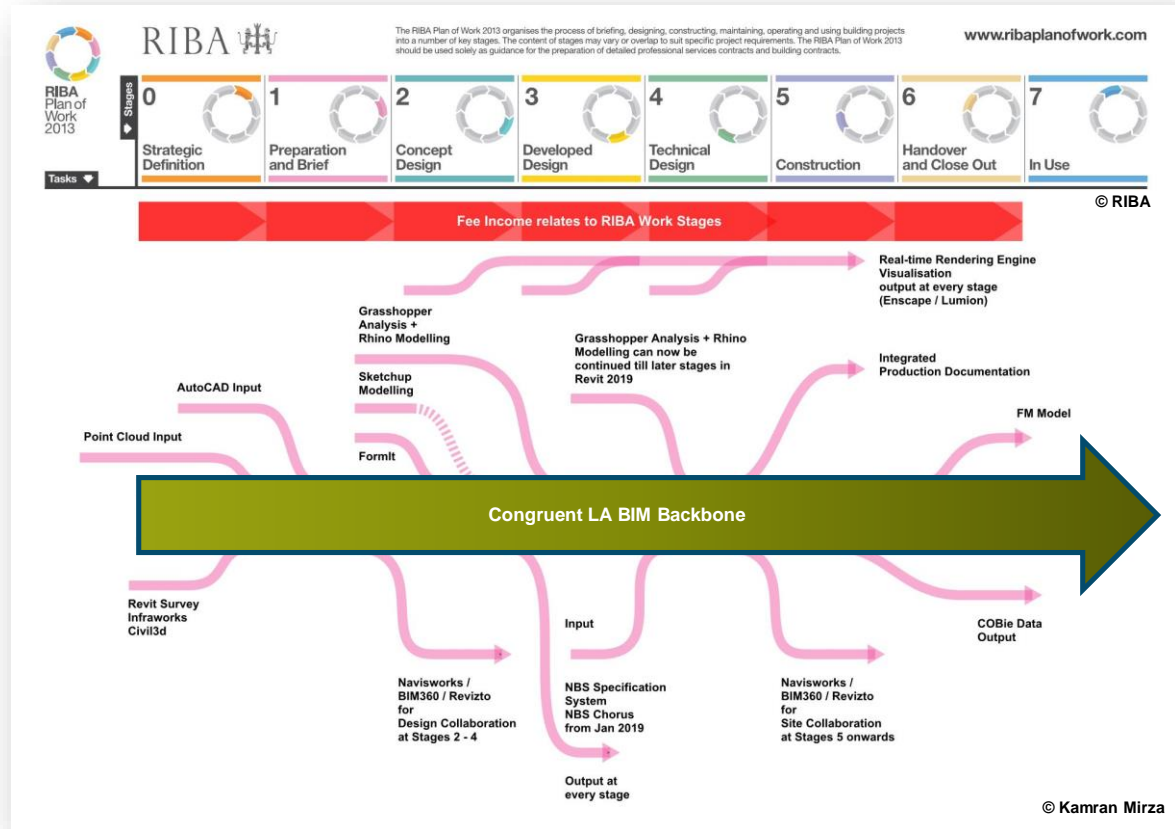
LA & Revit



LA & Revit . The BIM Backbone



LA & Revit . LA Workflow & Delivery



LA & Revit . LA Workflow & Delivery



Landform design



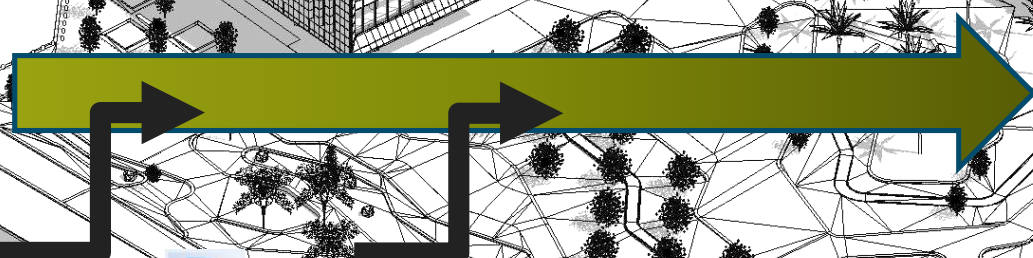
LA & Revit . LA Workflow & Delivery



Landform design



Hardscape design



LA & Revit . LA Workflow & Delivery



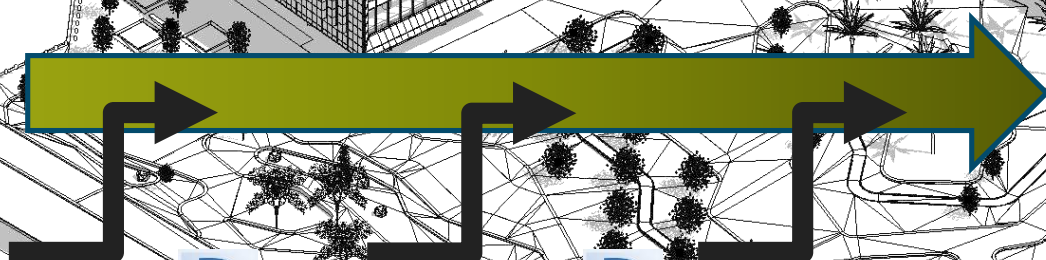
Landform design



Hardscape design



Details



LA & Revit . LA Workflow & Delivery

Planting
Palettes &
Scheme



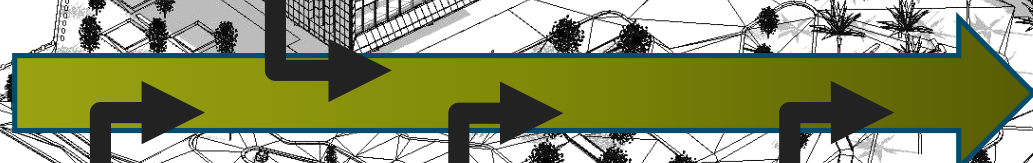
Landform design



Hardscape design



Details



LA & Revit . LA Workflow & Delivery



Planting
Palettes &
Schedule

Missing Link in
Revit



Landform design



Hardscape design



Details

LA & Revit . LA Workflow & Delivery



Planting
Palettes &
Schedule

Softscape
(Planting) design*



Landform design



Hardscape design



Details

Revit Workflow



LA Typologies . Our Classifications

We've classified our work into three types of landscape architecture:

1. Picturesque / Naturalistic LA
2. Urban LA
3. Building associated LA

These will be familiar to LA's but help the rest of us understand the subject to be able to understand the workflow



LA Typologies . Picturesque LA



LA Typologies . Picturesque LA

Picturesque or naturalistic LA

Landform design required

Idealised softscape planting and landforms based upon indigenous natural flora but in a man-made environment.

Can also include formal garden designs.

LA Typologies . Urban LA



LA Typologies . Urban LA

Generally hard landscape, with limited softscape planting, water features and lighting

LA Typologies . Building associated LA



LA Typologies . Building associated LA

Range of design from Picturesque to Urban but generally this category is used to describe LA that is in the environs of a piece of architecture and includes the exterior of the building that is part of the project, including surroundings, approach, courtyards, terraces, roof gardens and any internal landscape architecture.

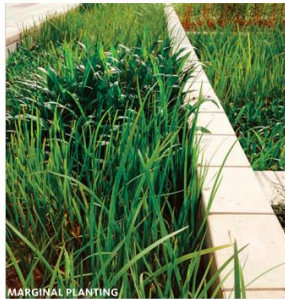
Revit Workflow . Summary . LA & Revit

- A. Landform design
- B. Hardscape design
- C. Details
- D. Softscape (Planting) design*
- E. Schedules*

*Previously the 'missing link' in Revit for LA





















Revit Workflow . Planting Palettes & Schedules

Planting Mixes / Schemes for a Project



Creating a Planting Palette

Trees

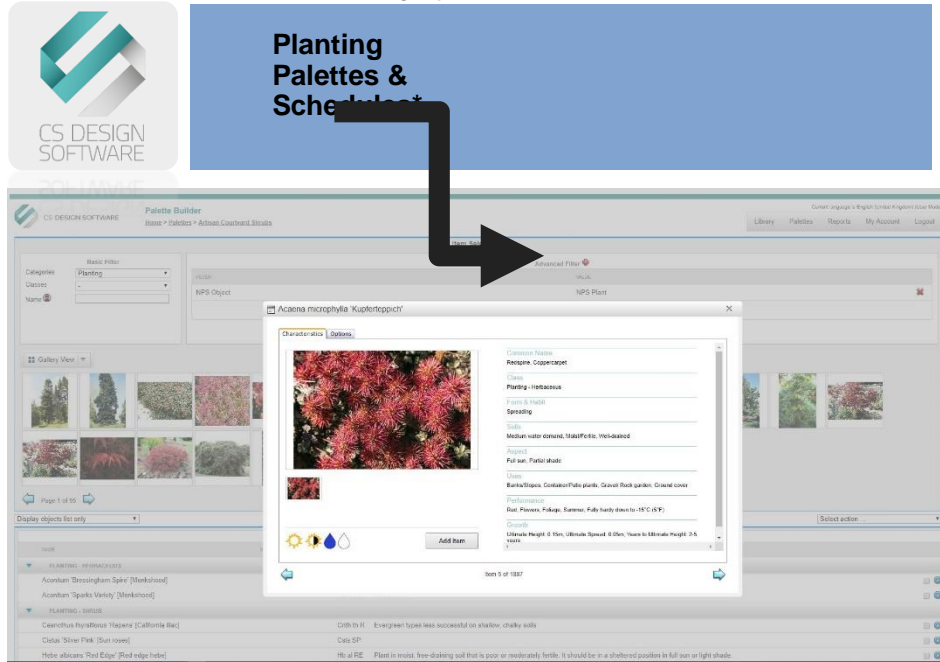
SPECIES (Common/Botanical Name)		DESCRIPTION	EXAMPLES
Snowy mespilus Silver Birch Rowan Small Leaved Lime Elm 'New Horizon'	Amelanchier lamarckii Betula pendula Sorbus aucuparia Tilia cordata Ulmus 'New Horizon'	PLAZA & CAR PARK	   
Silver Birch Red Oak Crab Apple Lombardy Poplar Wild Cherry	Betula pendula 'jacquemontii' Quercus rubra Malus sylvestris Populus nigra Prunus avium	PARKLAND	   
Field Maple Common Ash Scots Pine Pedunculate Oak Yew	Acer campestre Fraxinus excelsior Pinus sylvestris Quercus robur Taxus baccata	STRUCTURE WOODLAND	   
Common Alder Wild Cherry Elm 'New Horizon' Scots Pine	Alnus glutinosa Prunus avium Ulmus 'New Horizon' Pinus sylvestris	NATIVE WOODLAND	   
Common Alder Alder White Willow Goat Willow	Alnus glutinosa Populus tremula Salix alba Salix caprea	WET WOODLAND	   

Previously done manually with an abortive, non-connected workflow
right: Excel and InDesign

Revit Workflow . Planting Palettes & Schedules

'Missing Link' in Revit

Planting Palettes & Schedule*

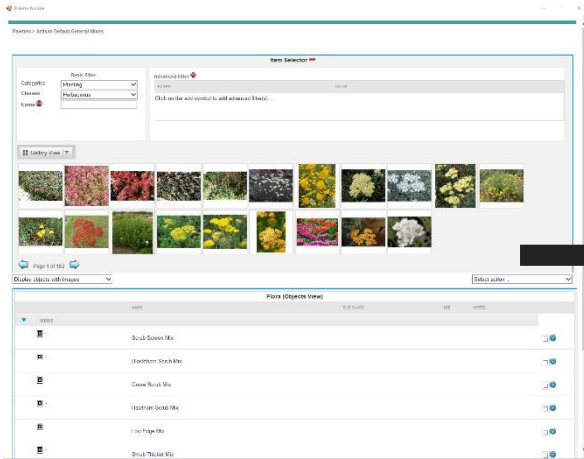


Revit Workflow . Planting Palettes & Schedules

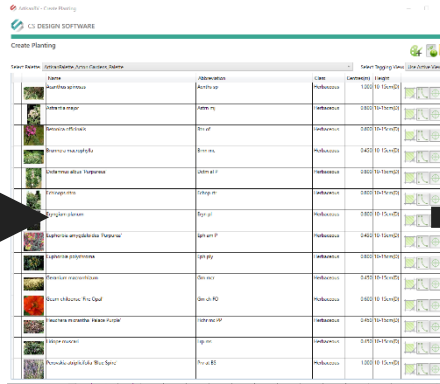
- The NPS itself contains approximately 1700 plant species and varieties and approximately 5,700 approved specs for the UK and Europe: commonly referred to as the 'Growers lists'.
- CSD has added to this resource over the years, which currently contains approximately 11,500 species and varieties and approximately 120,000 specification options.
- The former Australasian database is now subsumed within the same libraries.
- The CSD planting libraries delivered via the Cloud enable users to easily add their own custom plants.

Revit Workflow . Planting Palettes & Schedules

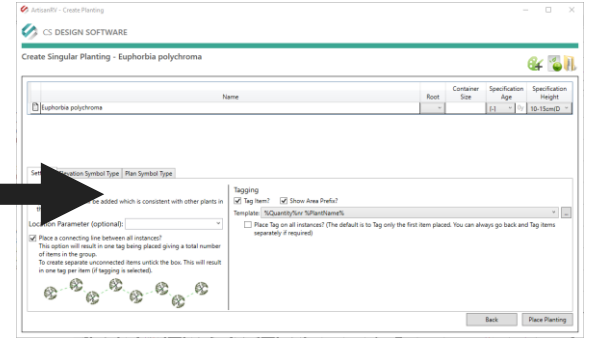
Creating a Planting Palette



Selection from online NPS



Creation of Palette



Insertion of Planting in Revit

Revit Workflow . Planting Palettes & Schedules

Creating a Planting Palette

The left panel shows three Revit views of a landscape project. The top view is a 3D perspective of a proposed planting area with various trees and shrubs. The middle view is a long section showing the vertical arrangement of plants. The bottom view is a floor plan showing the layout of the planting area with labels like 'BW1-2'.

ArtisanRV - Edit Area Planting

CS DESIGN SOFTWARE

- MIX - Birch Woodland Mix 1

Planted 15 Years Growth from planting 49 Years

Planting Parameters: (The height / spread indicated in the model can be changed by using the 'Age Planting' command or the slider above)

Name	Plant Code	No.	%
Birch Woodland Mix 1	BW1	NaN	100.0

Name	Girth	Clear Ster	Root Condition	Container Size	No.	(m) Centers	per m ² Density	Specification Age	Specification Height	Model Height	Model Spread	%	
Corylus avellana			B		21	1.000	1.00	1+1 or 1/1	2y	40-60cm	3.93	3.93	5.0
Ilex aquifolium			C	2L	21	1.000	1.00		2y	40-60cm	2.90	1.45	5.0
Prunus spinosa			B		12	1.000	1.00	1+1 or 1/1	2y	40-60cm	2.21	2.21	3.0
Sambucus nigra			B		12	1.000	1.00	1+0 or 1/0	1y	60-80cm	10.00	10.00	3.0
Viburnum opulus			B		8	1.000	1.00	1+1 or 1/1	2y	60-80cm	6.00	4.00	2.0
Rosa canina			B		21	1.000	1.00		2y	40-60cm	4.00	2.50	5.0
Acer campestre			B		21	1.000	1.00	1+1 or 1/1	2y	40-50cm	6.69	6.69	5.0
Alnus glutinosa			B		12	1.000	1.00		5y	40-60cm	9.07	4.54	3.0
Betula pendula			B		124	1.000	1.00	1+0 or 1/0	1y	60-80cm	11.41	5.48	30.0
Betula pubescens			B		41	1.000	1.00	1+0 or 1/0	1y	40-60cm	9.07	4.54	10.0
Crataegus monogyna			B		21	1.000	1.00	1u1	2y	60-80cm	4.99	3.99	5.0
Fraxinus excelsior			B		8	1.000	1.00	1+1 or 1/1	2y	40-50cm	6.88	5.50	2.0
Populus tremula			B		12	1.000	1.00	1+1 or 1/1	2y	60-80cm	7.13	5.70	3.0
Prunus avium			B		21	1.000	1.00	1+0 or 1/0	1y	60-80cm	9.70	6.47	5.0
Quercus petraea			B		21	1.000	1.00	1u1	2y	60-80cm	7.12	5.34	5.0
Salix caprea			B		12	1.000	1.00		5y	80-100cm	6.04	4.03	3.0
Salix cinerea			B		12	1.000	1.00		5y	40-60cm	4.86	1.46	3.0

Location: East Bank

Fill Pattern: Wood1

Place 2D Only? This option will quantify planting and show in plan view only.

Tagging: ☒ Tag Item? ☒ Use Compact Label? ☒ Show Area Prefix?

Template: %Quantity%nr %PlantName%

Edge Graphic: ☒ Include edge graphic?

Segment Length: 1665 mm

Close Save Changes

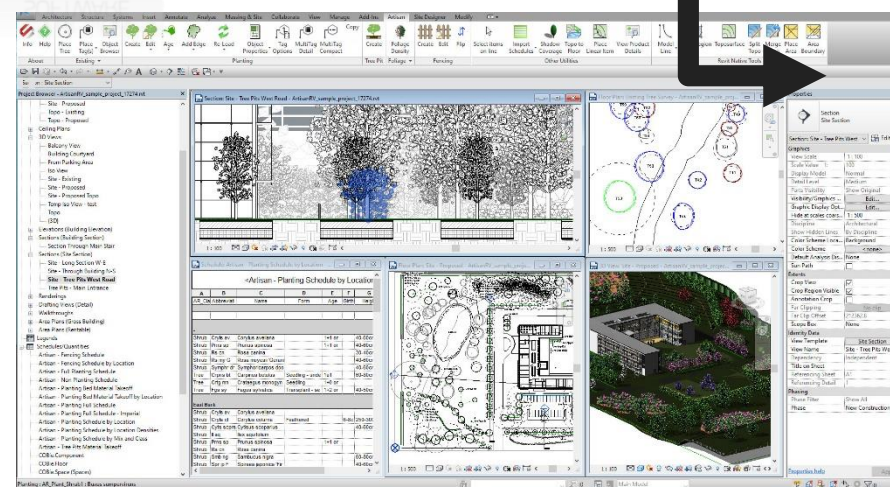
Final Area Planting Palette

Revit Workflow . Softscape design



'Missing Link' in
Revit

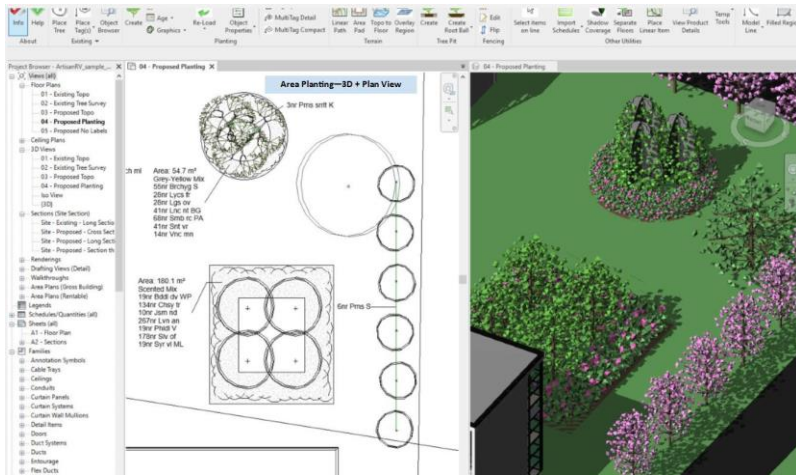
Softscape
(Planting) design*



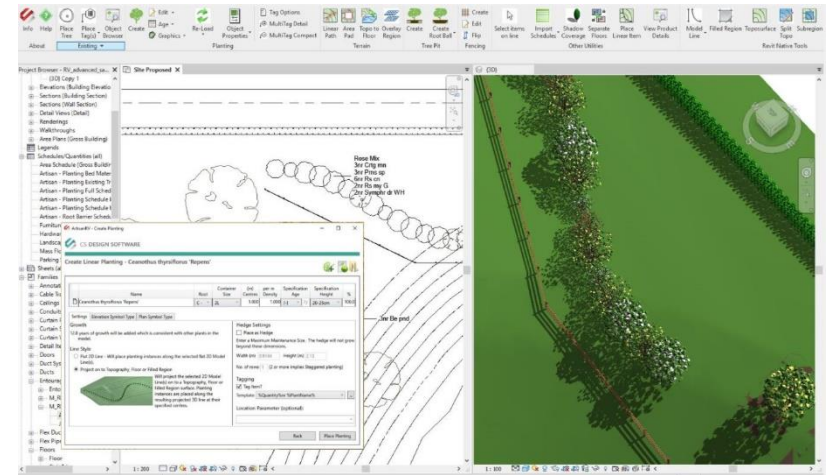
Place Planting on topography, Age/Grow plants, Use Schedules, Create Shadow Analysis, etc.

Revit Workflow . Softscape design

Area Planting



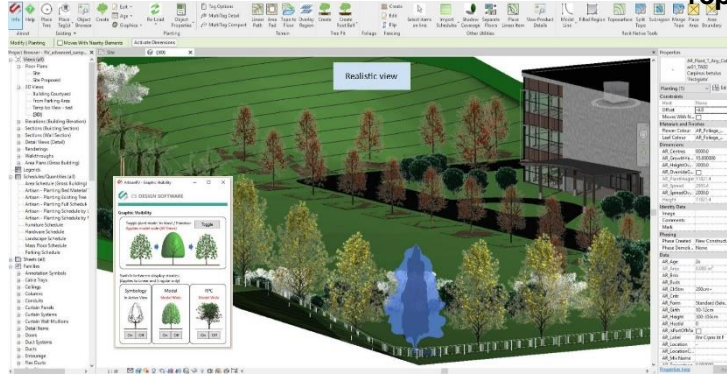
Linear Planting



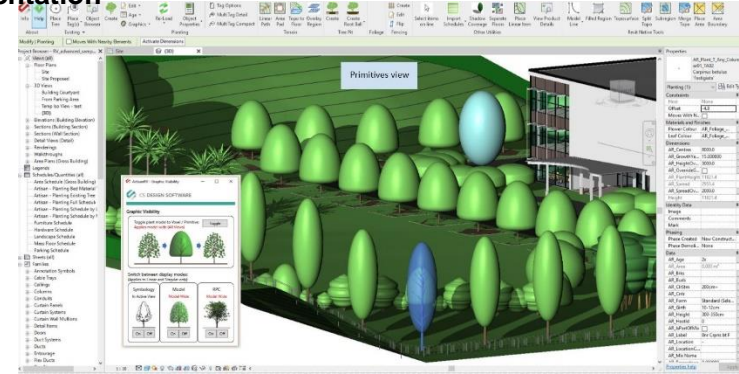
Revit Workflow . Softscape design

Model representation

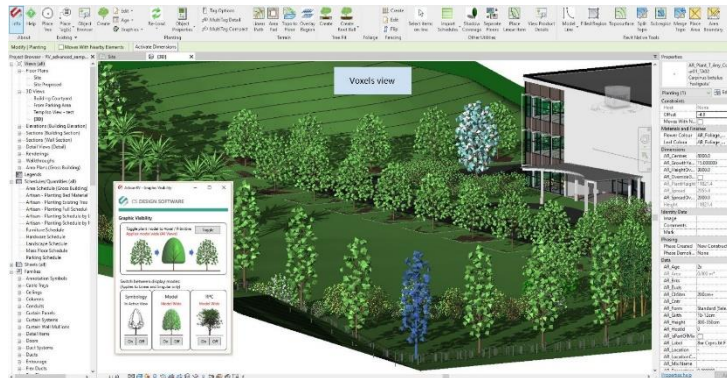
Realistic



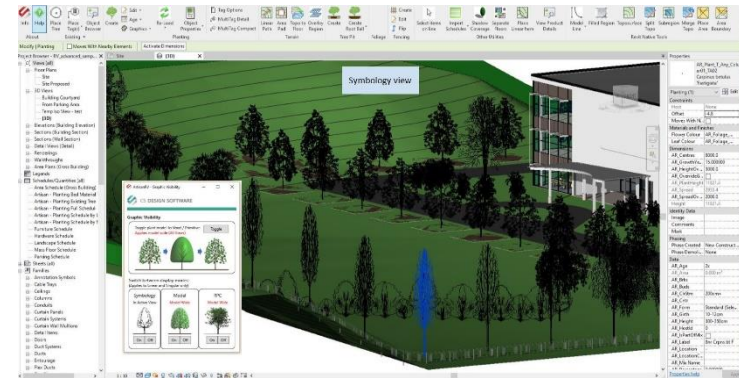
Primitives



Voxel



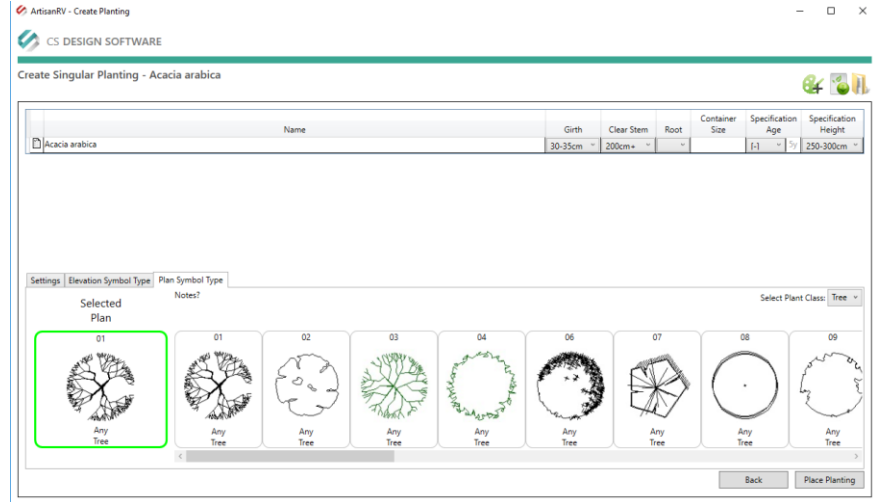
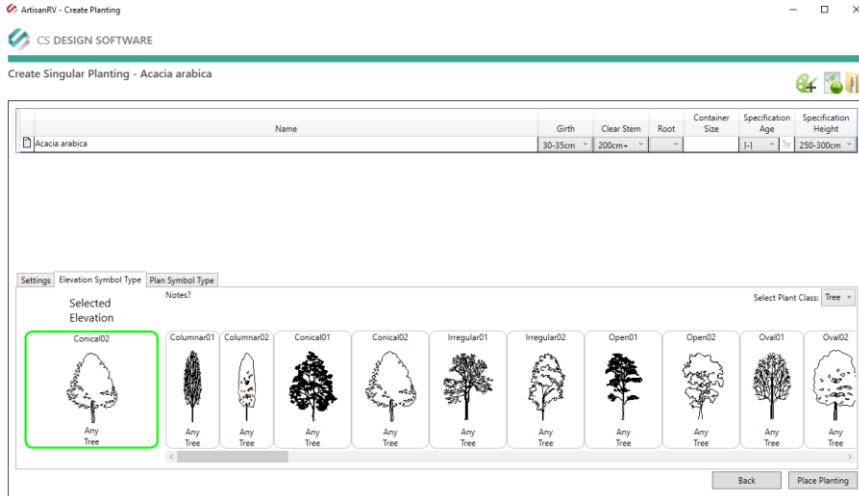
Symbology



Revit Workflow . Softscape design

Symbology

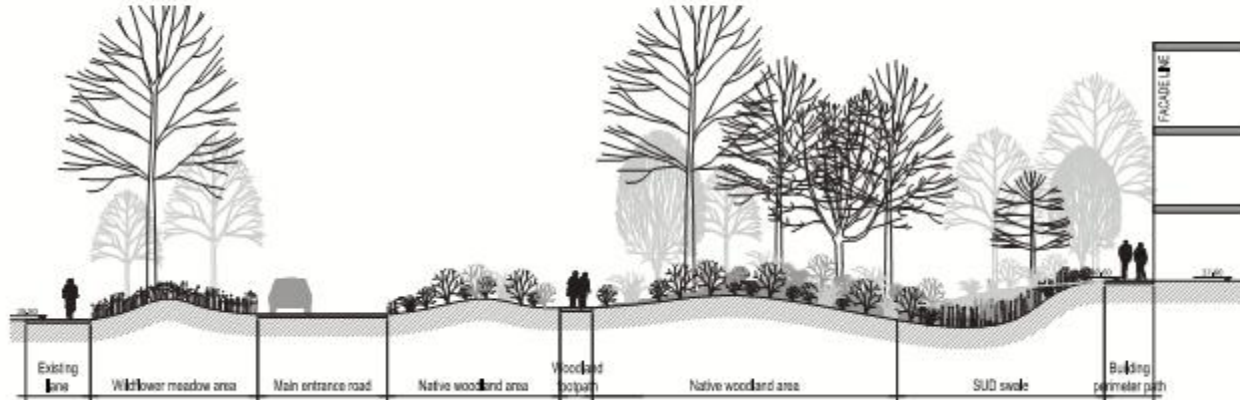
On its way to being
User-defined



Revit Workflow . Softscape design

Symbology

For the drawings we want



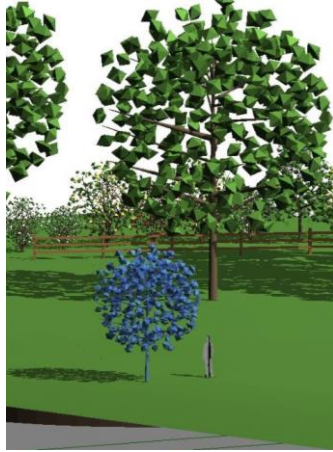
Section through Woodland Walk and landform

Revit Workflow . Softscape design

Aging Plants
(Incl. Legislative Requirements,
etc)

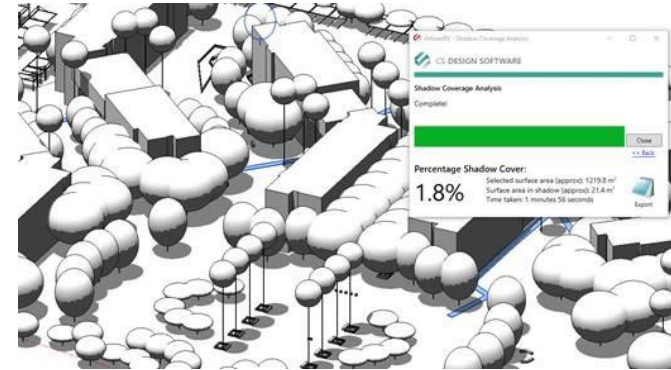


0 Years

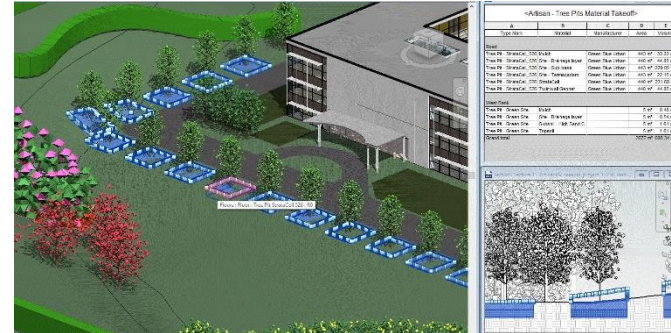


25 Years
(RPC)

Existing Tree Survey



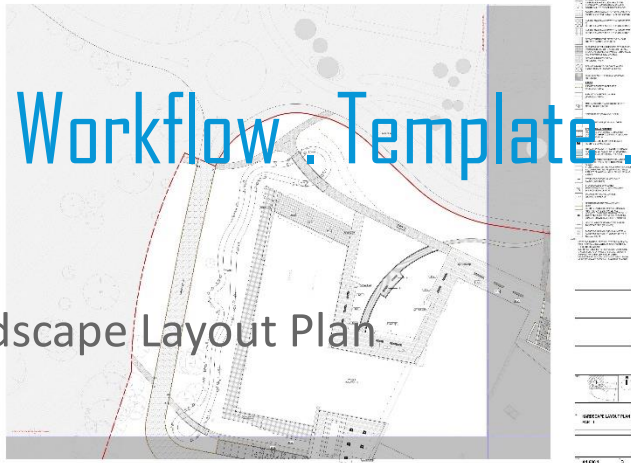
Shading Report



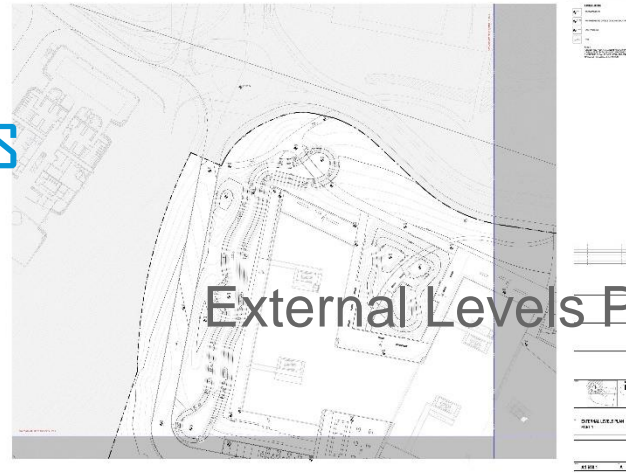
TreePits

Revit Workflow . Template . GAs

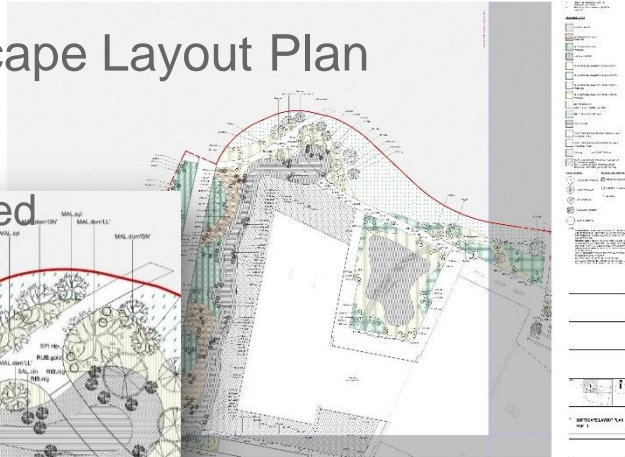
Hardscape Layout Plan



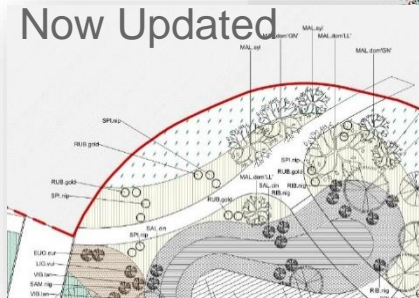
External Levels Plan



Softscape Layout Plan



Now Updated

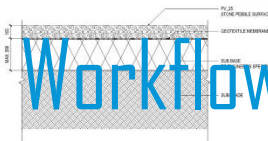


Setting out Plan

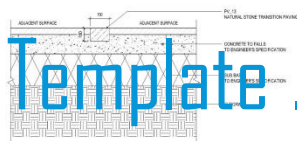


Revit Workflow . Template . Details

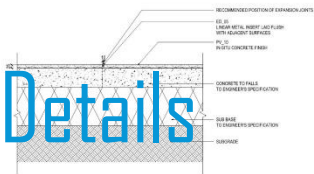
13 STONE PEBBLE SURFACE
SCALE: 1/4"



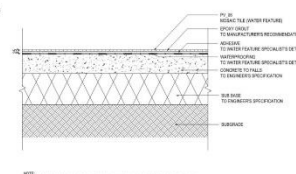
12 NATURAL STONE TRANSITION PAVING
SCALE: 1/4"



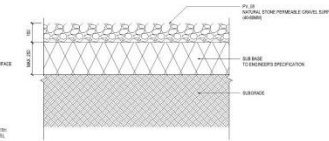
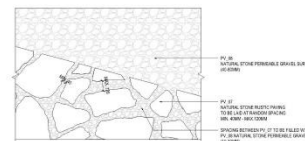
6 IN-SITU CONCRETE SURFACE
SCALE: 1/4"



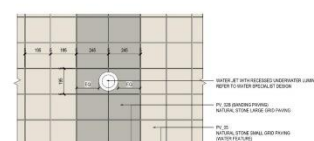
3 MOSAIC PAVING - WATER FEATURE
SCALE: 1/4"



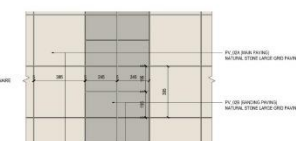
11 NATURAL STONE PERMEABLE RUBBLE SURFACE
SCALE: 1/4"



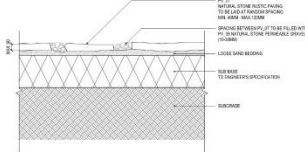
5 RECONSTITUTED STONE PAVING (BOARDWALK)
SCALE: 1/4"



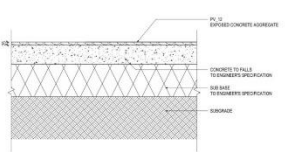
2 NATURAL STONE PAVING - VEHICULAR
SCALE: 1/4"



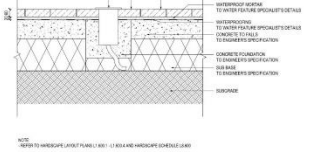
10 DETAILED PLAN FOR RUSTIC PAVING AND GRAVEL SURFACE
SCALE: 1/4"



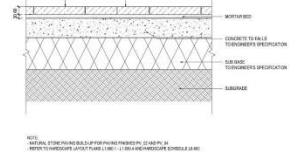
8 NATURAL STONE PERMEABLE GRAVEL SURFACE
SCALE: 1/4"



4 NATURAL STONE PAVING - WATER FEATURE
SCALE: 1/4"



1 NATURAL STONE PAVING - PEDESTRIAN
SCALE: 1/4"



Model extracted
views

+

2D Detail
components

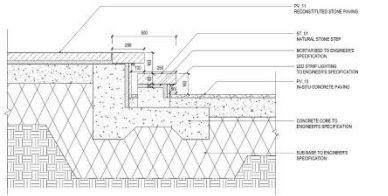
typical



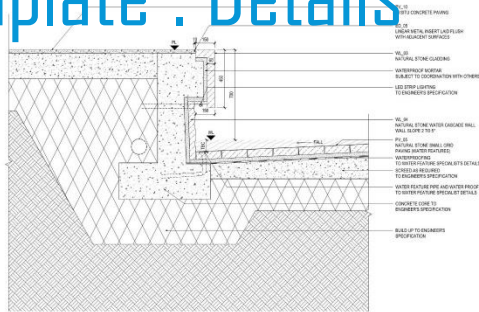
TYPICAL PAVING DETAILS AT GRADE

SCALE: 1/4"

Revit Workflow . Template . Details

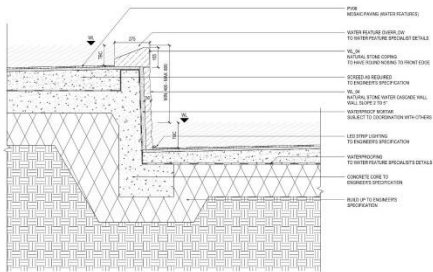


7 'FLOATING' STEPS IN WATER TERRACES



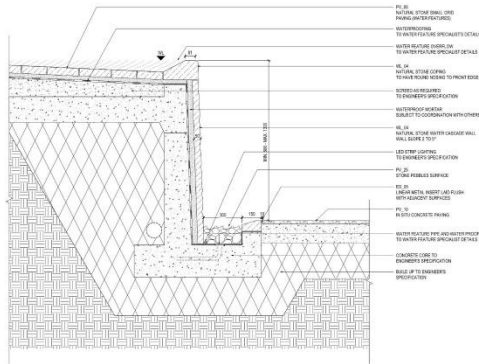
NOTE:
- FOR WATER FEATURE DETAILS REFER TO WATER FEATURE SPECIALIST DETAILS
- DRAWING SHOWN AS DESIGN INTENT ONLY

5 WATER CASCADE WALL THROUGH SEATING AREAS - LOWER TERRACE



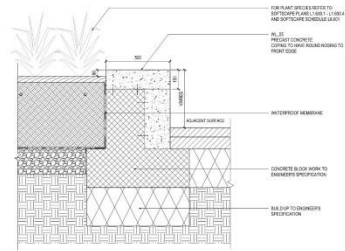
NOTE:
- FOR WATER FEATURE DETAILS REFER TO WATER FEATURE SPECIALIST DETAILS
- DRAWING SHOWN AS DESIGN INTENT ONLY

6 WATER CASCADE WALL THROUGH WATER TERRACES

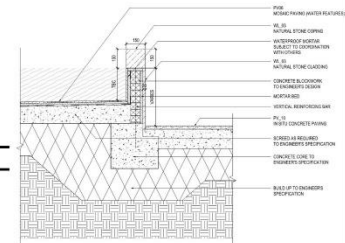


NOTE:
• FOR INTER FEATURE DETAILS REFER TO INTER FEATURE SPECIALIST DETAILS
• DRAWING SHOWING DESIGN INTENT ONLY

4 WATER CASCADE WALL THROUGH SEATING AREAS - UPPER TERRACE

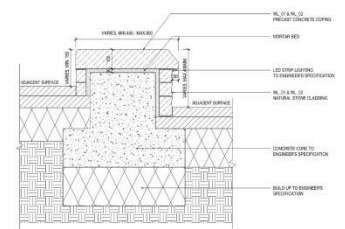


3 PRECAST CONCRETE PLANTER WALL



NOTE:
 * FOR WATER FEATURE DETAILS REFER TO WATER FEATURE SPEC/SLIST DETAILS
 * DRAPING SHOWN AS CRISP, INTENT ONLY

2 WATER TERRACE CLAD WALL

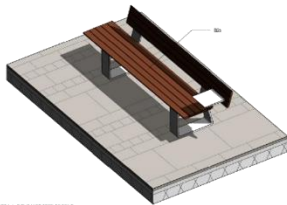


1 WADI GARDEN SEATING WALL

TYPICAL WALL/CHANGE IN LEVEL
DETAILS AT GRADE

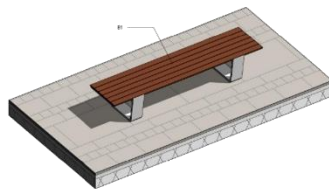
number
L3.620

Revit Workflow . Template . Details



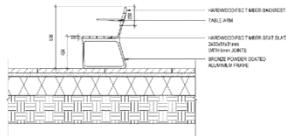
NOTE: BENCH TO HAVE THE MICROFIBER PROFILE
SEE ANCHOR

BENCH B2a AND B2b 3D VIEW
SCALE: 1/8"



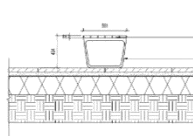
BENCH B1 3D VIEW
SCALE: 1/8"

08



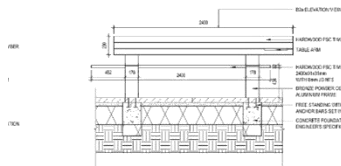
NOTE: FOR MICROFIBER USE MICROFIBER OPTION
SEE ANCHOR FOR MORE RECOMMENDATIONS

TYPICAL DETAIL - BENCH B2a AND B2b - SIDE ELEVATION
SCALE: 1/8"



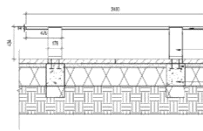
NOTE: FOR MICROFIBER USE MICROFIBER OPTION
SEE ANCHOR FOR MORE RECOMMENDATIONS

TYPICAL DETAIL - BENCH B1 - SIDE ELEVATION
SCALE: 1/8"



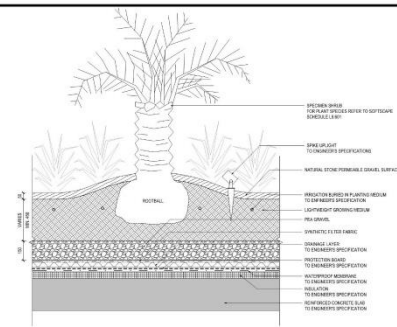
NOTE: FOR MICROFIBER USE MICROFIBER OPTION
SEE ANCHOR FOR MORE RECOMMENDATIONS

TYPICAL DETAIL - BENCH B2a AND B2b - FRONT ELEVATION
SCALE: 1/8"



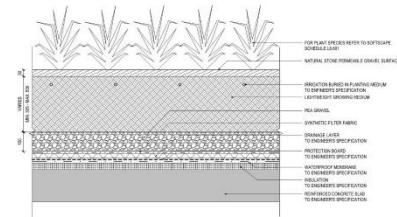
NOTE: FOR MICROFIBER USE MICROFIBER OPTION
SEE ANCHOR FOR MORE RECOMMENDATIONS

TYPICAL DETAIL - BENCH B1 - FRONT ELEVATION
SCALE: 1/8"



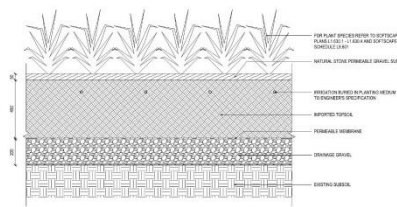
NOTE: ALL DIMENSIONS ARE NOTES SETBACKS DEPTH NAME OF AS REQUIRED TO ACHIEVE MINIMUM COVER

3 SOIL PROFILE / SPECIMEN SHRUB PLANTING AT STRUCTURE
SCALE: 1/8"



NOTE: ALL DIMENSIONS ARE NOTES SETBACKS DEPTH NAME OF AS REQUIRED TO ACHIEVE MINIMUM COVER

2 SOIL PROFILE / ORNAMENTAL MIXES PLANTING AT STRUCTURE
SCALE: 1/8"



NOTE: ALL DIMENSIONS ARE NOTES SETBACKS DEPTH NAME OF AS REQUIRED TO ACHIEVE MINIMUM COVER

1 SOIL PROFILE / ORNAMENTAL MIXES PLANTING AT GRADE
SCALE: 1/8"

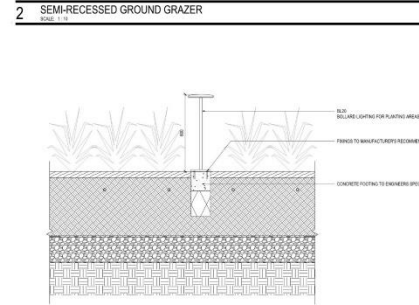
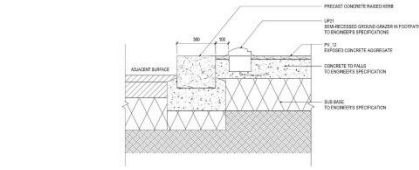
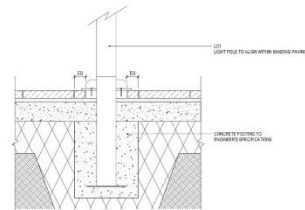
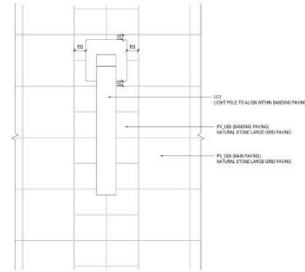
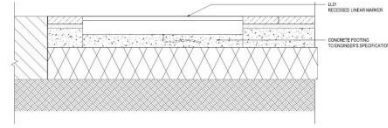
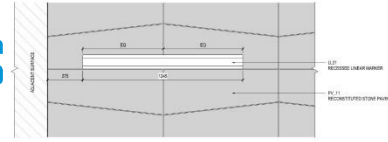
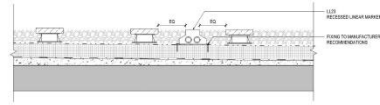
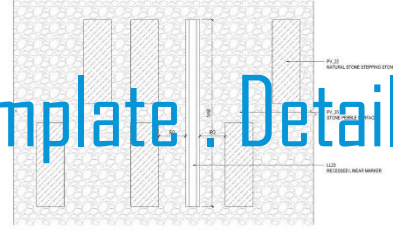
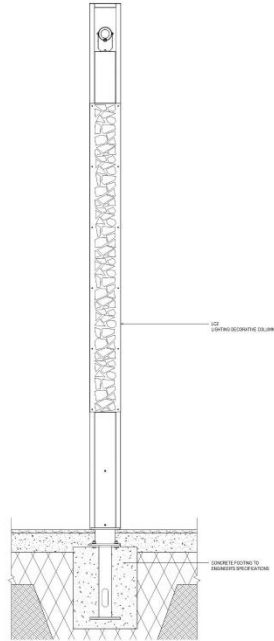
typical



typical softscape details

DATE: L3.650

Revit Workflow . Template : Details

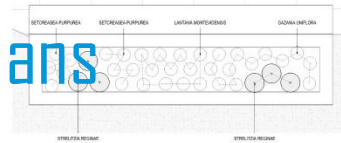
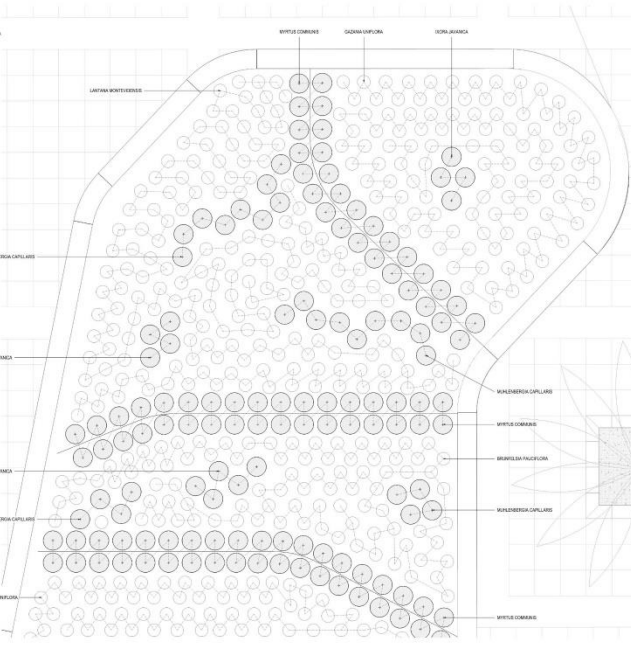


- NOTES:
1. FOR ALL LIGHTING FIXTURES, REFER TO DETAIL 10-000.
 2. FOR ALL LIGHTING FIXTURES, REFER TO DETAIL 10-000.
 3. FOR ALL LIGHTING FIXTURES, REFER TO DETAIL 10-000.
 4. FOR ALL LIGHTING FIXTURES, REFER TO DETAIL 10-000.
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 7. FOR ALL LIGHTING FIXTURES, REFER TO DETAIL 10-000.
 8. FOR ALL LIGHTING FIXTURES, REFER TO DETAIL 10-000.

EXTERNAL LIGHTING DETAILS

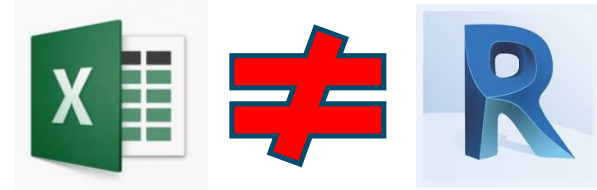
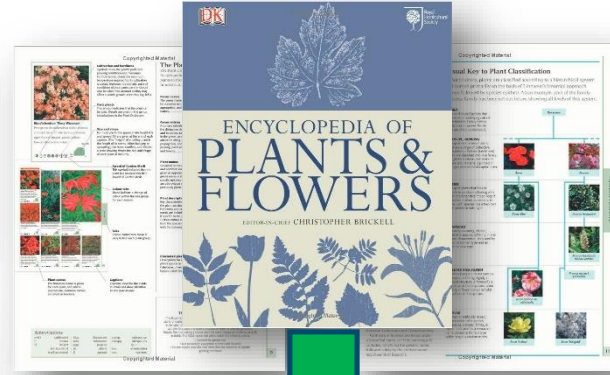
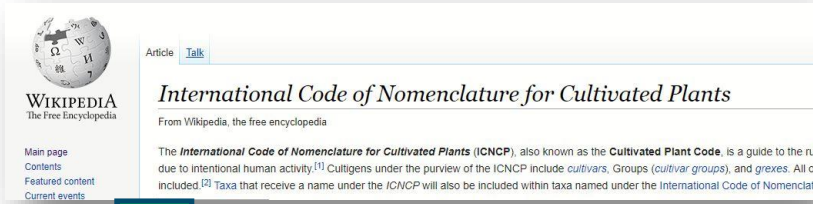
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L3.656

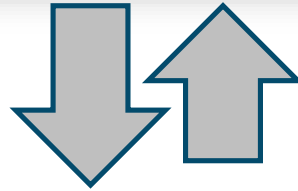
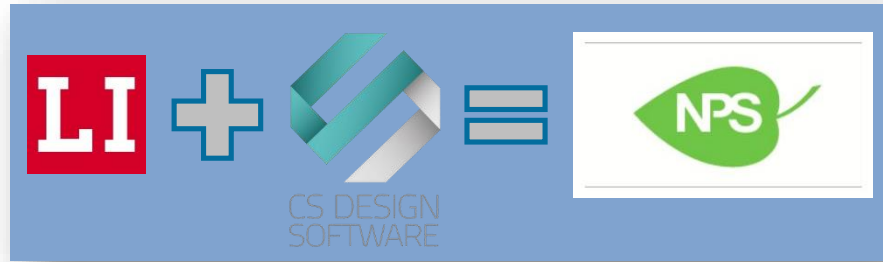


TYPICAL PLANTING LAYOUT PLANS

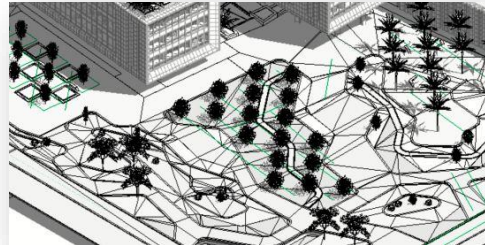
Revit Workflow . Recap of Industry



Revit Workflow . Summary. LA Workflow



Geometry



Conclusion



Conclusion . Revit and LA design processes

- Half of a Landscape Architect's work can be done with the out-of-the-box tools already present.
- However the weak or missing link is softscape and planting tools in Revit
- This has been plugged with ArtisanRV leveraging the NPS digital resource

Conclusion . Collaboration ?

No-brainer - Inherent in a BIM workflow

- Linked models with all other project consultants
- BIM 360
- Navisworks
- Specs - NBS Create (and . . . Chorus)
- Cost consultants

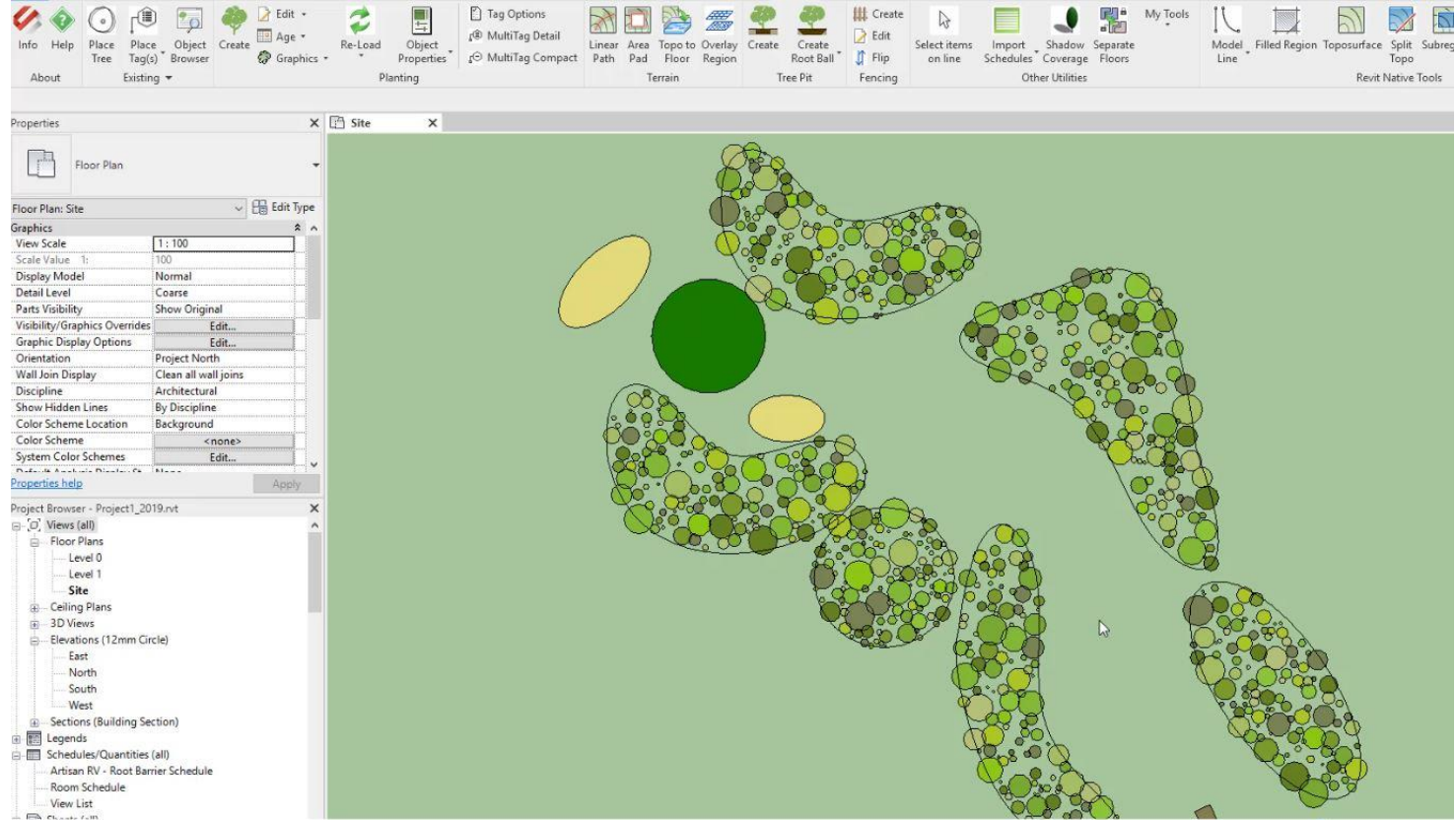
Conclusion . Vendors' Revit Families

- In parallel with the rest of the market, there is immense amount available, growing everyday
- Furniture, materials, lighting, etc.
- Filtering protocol necessary – for filtering CAD imports, etc.

Conclusion . The Future

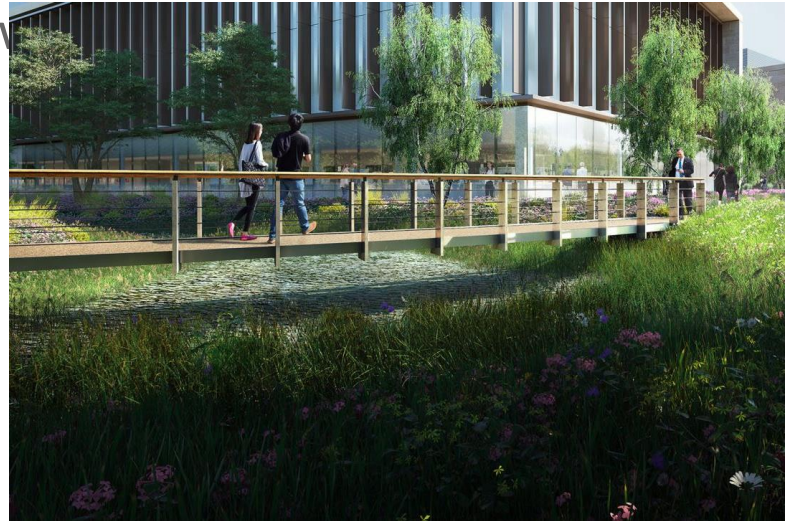
- Completing an End-to-End workflow solution within the BIM Backbone – from concept to documentation
- Weaknesses – currently the near and far ends: concept stage and visuals but we are working with the ArtisanRV team to fill this gap and we envisage that within the next few months an end-to-end solution will be available.

Conclusion . The Future. The near end



Conclusion . The Future. The far end

- Enscape <-> Archvision RPCs



Bibliography

References:

- Websites
- Books
- Blogs

Refer to Handout
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Landscape Architecture Revit Workflows for Collaboration and Documentation

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